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TABLES OF EIGENVALUES AND EIGENFUNCTIONS OF THE ORR-SOMMERFELD EQUATION FOR PLANE POISEUILLE FLOWS

by

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10 September 1971

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D 208.14/2:NPS-57GN71092A

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ABSTRACT:

In this report we present a numerical technique for computing the eigenvalues and eigenfunctions of the Orr-Sommerfeld equation for infinitesimal disturbances in plane Poiseuille flows. For the case $\alpha = 1.0$, $R_e = 6667$ the eigenvalues, β_{nm}, ($n = 1,2,3,4 \quad m = 1,2...199$) and eigenfunctions, $\Phi_{nm}(y)$, ($n = 1,2,3,4 \quad m = 1,2,...8$) are presented in tabular and graphical form. In addition the function, $\chi_{nm}(y)$, (equation 27) which is orthogonal to $\Phi_{nm}(y)$ over the interval $-1 \leq y \leq \pm 1$ is tabulated.

In a previous report (Gawain and Clark 1971) it was shown that these eigenfunctions can be extremely useful in describing certain aspects of the non-linear mechanics of wave disturbances in plane Poiseuille flows. It is hoped that the present report will serve both as a complement to the previously mentioned report (Reference 2) and as a useful reference for similar future investigations.

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1. Introduction

In this report we present tables and plots of a few of the eigenvalues and eigenfunctions of the Orr-Sommerfeld equation for infinitesimal disturbances in plane Poiseuille flows. These eigenvalues and eigenfunctions were originally used with considerable success in a numerical investigation of the response of plane Poiseuille flows to disturbances of finite amplitude (Gawain and Clark (1971)). In view of the success of this latter investigation, it seems that the eigenvalues and eigenvectors may be of sufficient general interest as to warrant their publication in tabulated form. The numerical techniques used to solve the linear Orr-Sommerfeld equation are quite straight forward and may be useful in solving other linear stability problems (such as two-dimensional Couette and boundary layer flows). In the following sections we shall outline the problem and the methods used in its solution and then present tables for a few solutions to the Orr-Sommerfeld equation.

2. The Linear Problem

We will consider two-dimensional flow between parallel walls of an incompressible, viscous fluid. The pertinent dimensions, coordinates and non-dimensionalization are indicated in Figure 1. The governing equations of motion can be written as

$$\frac{\partial \zeta}{\partial t} - \frac{\partial \Psi}{\partial y}\frac{\partial \zeta}{\partial x} + \frac{\partial \Psi}{\partial x}\frac{\partial \zeta}{\partial y} = \frac{1}{R_e}\nabla^2 \zeta \tag{1}$$

and

$$\zeta = \nabla^2 \Psi \tag{2}$$

where ζ and Ψ are the vorticity and stream functions respectively defined by

$$u = -\frac{\partial \Psi}{\partial y} \quad ; \quad v = \frac{\partial \Psi}{\partial x} \tag{3}$$

$$\zeta = \frac{\partial v}{\partial x} - \frac{\partial u}{\partial y} \tag{4}$$

The velocity components can be expressed as

$$u = U(y) + u'(x,y,t) \; ; \quad v = v'(x,y,t) \; ;$$

$$\zeta = -\frac{dU}{dy} + \zeta'(x,y,t) \tag{3}$$

$$\Psi = 3/2(1/3\, y^3 - y) + \Psi'(x,y,t)$$

where the primed quantities represent the instantaneous departure of the flow from the original laminar flow. Substituting equations (3) into (1) results in

$$\frac{\partial \zeta'}{\partial t} + U \frac{\partial \zeta'}{\partial x} - U'' \frac{\partial \Psi'}{\partial x} - \frac{1}{R_e} \nabla^2 \zeta' = \frac{\partial \Psi'}{\partial y} \frac{\partial \zeta'}{\partial x} - \frac{\partial \Psi'}{\partial x} \frac{\partial \zeta'}{\partial y}$$

$$\zeta' = \nabla^2 \Psi' \tag{4}$$

The conditions of zero slip and no through flow at the walls imply that Ψ' satisfies the boundary conditions

$$\Psi' = \frac{\partial \Psi'}{\partial y} = 0 \qquad \text{at } y = \pm 1 \tag{5}$$

If we consider the case of infinitesimally small disturbances then the terms on the right side of equation 4 can be neglected. This results in the following equation for small disturbances

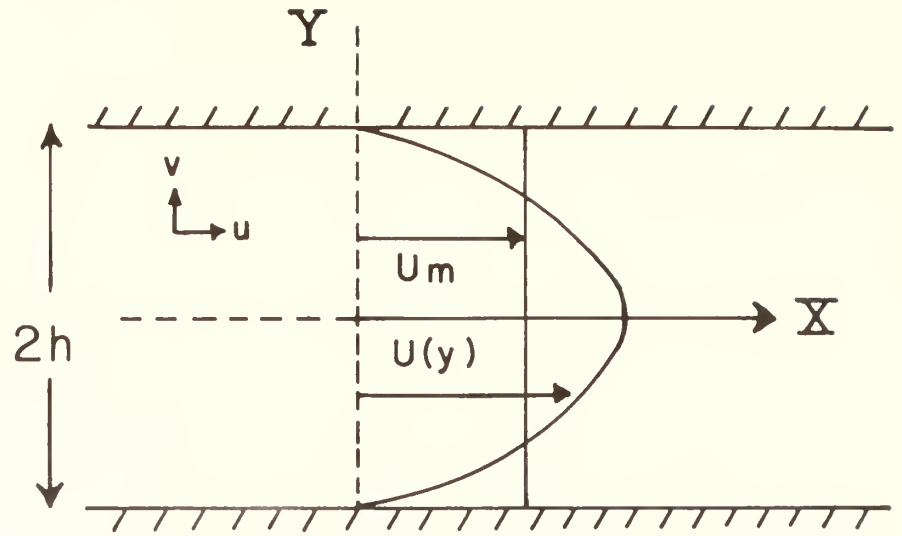


Figure 1. $R_e = U_m h / \nu$; $y = Y/h$, $x = X/h$

$U(y) = 3/2\ (1 - y^2)$

$$\frac{\partial \zeta'}{\partial t} + U \frac{\partial \zeta'}{\partial x} - U'' \frac{\partial \psi'}{\partial x} - \frac{1}{R_e} \nabla^2 \zeta' = 0 \tag{6}$$

$$\zeta' = \nabla^2 \psi'$$

Equations 6 admit general periodic solutions

$$\psi'(x,y,t) = \sum_{n=-\infty}^{\infty} \sum_{m=1}^{\infty} \Phi_{nm}(y) e^{-i(n\alpha x - \beta_{nm} t)} \tag{7a}$$

$$\zeta'(x,y,t) = \sum_{n=-\infty}^{\infty} \sum_{m=1}^{\infty} \theta_{nm}(y) e^{-i(n\alpha x - \beta_{nm} t)} \tag{7b}$$

with

$$\theta_{nm} = \Phi''_{nm} - (n\alpha)^2 \Phi_{nm} \tag{8}$$

$$\alpha = 2\pi/\lambda \tag{9}$$

where λ is the wavelength of the disturbance. Substituting equations 7 into (4) results in the well known Orr-Sommerfeld equation for $\Phi_{nm}(y)$ i.e.,

$$(D^2 - n^2\alpha^2)^2 \Phi_{nm} + i n \alpha R_e \left[(U - \frac{\beta_{nm}}{n\alpha})(D^2 - n^2\alpha^2) \Phi_{nm} - U'' \Phi_{nm} \right] = 0 \tag{10}$$

$$D^2 = \frac{d^2}{dy^2}$$

with boundary conditions

$$\Phi_{nm} = \Phi'_{nm} = 0 \quad \text{at} \quad y = \pm 1 \tag{11}$$

Solutions of (10) for Φ_{nm} for given α, n, and R_e can be made to satisfy the homogeneous boundary conditions (11) only for the discrete eigenvalues, β_{nm}, $1 \leq m \leq \infty$. For the given α, n, and R_e we are usually

interested in determining if there exist corresponding β_{nm}'s which have negative imaginary parts. The corresponding disturbance, Φ_{nm}, then grows exponentially with time and the flow is unstable to disturbances at the specified α, n, and R_e. Most previous investigations of the solution to equation (10) have been concerned with finding the unstable solutions for given α and R_e (See for example Lin 1955). The investigation previously referred to (Gawain and Clark 1971) indicated that a knowledge of some of the higher (stable) eigenfunctions can be extremely useful in investigating the complete non-linear two-dimensional equations of motion. In the following section a straight-forward numerical technique for finding a large number of the eigenvalues and eigenfunctions of equation (10) is presented. This is followed by tables and curves of these eigenvalues and eigenfunctions for a few specific examples.

3. Numerical Method

A schematic of the computational grid is shown in Figure 2. The length of the grid (2L) is arbitrary but is ordinarily set equal to the basic wavelength of the disturbance to be investigated. There are an even number (M) of grid points in the streamwise direction (denoted by K) and an odd number (N) of points in the lateral direction (denoted by J). By substituting equations (7a) and (7b) into equations (6) we can obtain the following second order equation for $\Phi_{nm}(y)$ and $\theta_{nm}(y)$

$$\frac{1}{R_e}(D^2 - n^2\alpha^2)\,\theta_{nm} + i\,n\alpha(U\,\theta_{nm} + 3\Phi_{nm}) = i\,\beta_{nm}\,\theta_{nm} \qquad (12)$$

$$\theta_{nm} = (D^2 - n^2\alpha^2)\,\Phi_{nm} \qquad (8)$$

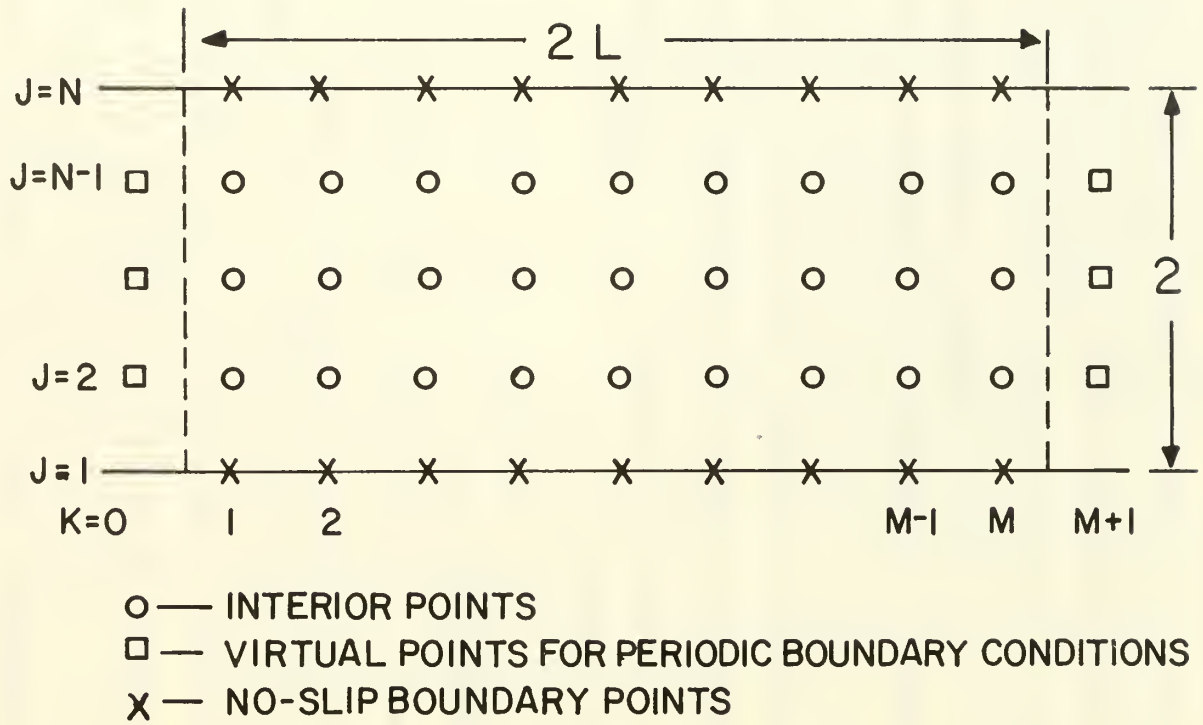


Figure 2. Finite Difference Mesh

We can now express these equations in finite difference form using ordinary central differencing.

$$\frac{1}{R_e \delta y^2}\left[(\theta_{J+1})_{nm} + \omega(\theta_J)_{nm} + (\theta_{J-1})_{nm}\right] + i n\alpha\left[U_J (\theta_J)_{nm} + 3(\Phi_J)_{nm}\right] = i \beta_{nm} (\theta_J)_{nm} \tag{13}$$

$$(\theta_J)_{nm} = \frac{1}{\delta y^2}\left[(\Phi_{J+1})_{nm} + \omega(\Phi_J)_{nm} + (\Phi_{J-1})_{nm}\right] \tag{14}$$

with

$$\omega = -\left[(2 + (n\alpha\delta y)^2\right]$$

Here the subscript, J, denotes a grid point in the lateral, y, direction. The boundary conditions (equation 11) in finite difference form are

$$(\Phi_1)_{nm} = (\Phi_N)_{nm} = 0 \tag{15}$$

and the no slip condition is satisfied as follows. The value of Φ_J at an interior point (J = 2,3, N-1) can be expressed in terms of Φ_1 (or Φ_N) by a Taylor series expansion. (We shall temporarily discard the subscript, nm)

$$\Phi_2 = \Phi_1 + \frac{\partial\Phi}{\partial y}\Big|_{J=1} \delta y + \frac{\partial^2\Phi}{\partial y^2}\Big|_{J=1} \frac{\delta y^2}{2} + \frac{\partial^3\Phi}{\partial y^3}\Big|_{J=1} \frac{\delta y^3}{6} + \ldots$$

$$\Phi_3 = \Phi_1 + 2\frac{\partial\Phi}{\partial y}\Big|_{J=1} \delta y + 4\frac{\partial^2\Phi}{\partial y^2}\Big|_{J=1} \frac{\delta y^2}{2} + 8\frac{\partial^3\Phi}{\partial y^3}\Big|_{J=1} \frac{\delta y^3}{6} + \ldots \tag{16}$$

The no-slip condition, $\frac{\partial \Phi}{\partial y}\Big|_{J=1} = 0$, implies that (to second order in δy)

$$\frac{\partial^2 \Phi}{\partial y^2}\Big|_{J=1} = \frac{8\Phi_2 - \Phi_3}{2\delta y^2}$$

From equation (8) we have

$$\theta_1 = \frac{\partial^2 \Phi}{\partial y^2}\Big|_{J=1} = \frac{8\Phi_2 - \Phi_3}{2\delta y^2} \tag{17}$$

We shall now express equations (13), (14), and (17) in matrix form by defining the following matrices and vectors:

$$\bar{B} = \begin{bmatrix} \omega & 1 & 0 & 0 & 0 & \cdots & \\ 1 & \omega & 1 & 0 & 0 & \cdots & \\ 0 & 1 & \omega & 1 & 0 & \cdots & \\ & & \vdots & & & & \\ 0 & 0 & & & \cdots & 1 & \omega \end{bmatrix}$$

$$\bar{\theta} = \begin{bmatrix} \theta_2 \\ \theta_3 \\ \vdots \\ \theta_{N-1} \end{bmatrix} \qquad \bar{\Phi} = \begin{bmatrix} \Phi_2 \\ \Phi_3 \\ \vdots \\ \Phi_{N-1} \end{bmatrix} \qquad \bar{\gamma} = \begin{bmatrix} \theta_1 \\ 0 \\ 0 \\ \vdots \\ \theta_N \end{bmatrix}$$

$$\bar{P} = \begin{bmatrix} 8 & -\frac{1}{2} & 0 & 0 & 0 & \cdots & \\ 0 & 0 & 0 & 0 & 0 & \cdots & \\ & \cdot & & & & & \\ & \cdot & & & & & \\ & \cdot & & & & & \\ & \cdot & & & & & \\ 0 & 0 & \cdots & & 8 & -\frac{1}{2} & \end{bmatrix}$$

$\bar{B}$ is an (N-2) x (N-2) tri-diagonal matrix as shown, $\bar{P}$ is an (N-2) x (N-2) matrix, which is used to express the boundary condition (17), $\bar{\Theta}$, $\bar{\Phi}$, and $\bar{\gamma}$ are (N-2) vectors and the matrix $\bar{\Lambda}(\eta_J)$ is a diagonal (N-2) x (N-2) matrix defined by

$$\bar{\Lambda}(\eta_J) = \begin{bmatrix} \eta_2 & 0 & 0 & 0 & \cdots & \\ 0 & \eta_3 & 0 & 0 & \cdots & \\ 0 & 0 & \eta_4 & 0 & \cdots & \\ & \cdot & & & & \\ & \cdot & & & & \\ & \cdot & & & & \\ \cdot & \cdot & \cdot & \cdot & \cdot & \eta_{N-1} \end{bmatrix}$$

Using this matrix formulation, equations (13) and (14) can be written

$$\frac{1}{R_e \delta y^2} \left[\bar{B}\,\bar{\Theta} + \bar{\gamma} \right] + i n \alpha \left[\bar{\Lambda}(U_J)\,\bar{\Theta} + \bar{\Lambda}(3)\,\bar{\Phi} \right] = i \beta\, \bar{\Theta} \qquad (18)$$

$$\bar{\Theta} = \frac{1}{\delta y^2} \bar{B}\,\bar{\Phi} \qquad (19)$$

The boundary conditions (17) become

$$\bar{\gamma} = \frac{1}{\delta y^2} \bar{P}\,\bar{\Phi} \qquad (20)$$

Substituting (19) and (20) into (18) results in

$$\frac{1}{R_e \delta y^2} \left[\bar{B}^2 + \bar{P} \right] \bar{\Phi} + i n \alpha \left[\bar{\Lambda}(U_J)\,\bar{B} + \bar{\Lambda}(3\delta y^2)\,\bar{\Phi} \right] = i \beta\, \bar{B}\,\bar{\Phi} \qquad (21)$$

Now multiply equation (21) through on the left by $\bar{B}^{-1}$.

$$\frac{1}{R_e \delta y^2}\left[\bar{B} + \bar{B}^{-1}\bar{P}\right]\bar{\Phi} + i\, n\alpha\, \bar{B}^{-1}\left[\bar{\Lambda}(U_J)\,\bar{B} + \Lambda\,(3\delta y^2)\right]\bar{\Phi} = i\,\beta\,\bar{\Phi}$$

Finally we obtain (restoring the nm subscript)

$$\bar{W}\,\bar{\Phi}_{nm} = i\,\beta_{nm}\,\bar{\Phi}_{nm} \tag{22}$$

where

$$W = \frac{1}{R_e \delta y^2}\left[\bar{B} + \bar{B}^{-1}P\right] + i\, n\alpha\, \bar{B}^{-1}\left[\bar{\Lambda}\,(U_J)\,\bar{B} + \bar{\Lambda}(3\delta y^2)\right] \tag{23}$$

Hence, our finite difference solution to the Orr-Sommerfeld equations reduces to the problem of determining the eigenvalues and eigenvectors of the complex matrix, $\bar{W}$.

Since equation (10) is symmetrical with respect to y, any solution $\Phi_{nm}(y)$ can be expressed as the sum of an even plus an odd solution and we need consider only the region $-1 \le y \le 0$. For even solutions the boundary conditions become

$$\Phi_{nm}(-1) = \Phi'(-1) = 0 \tag{11}$$

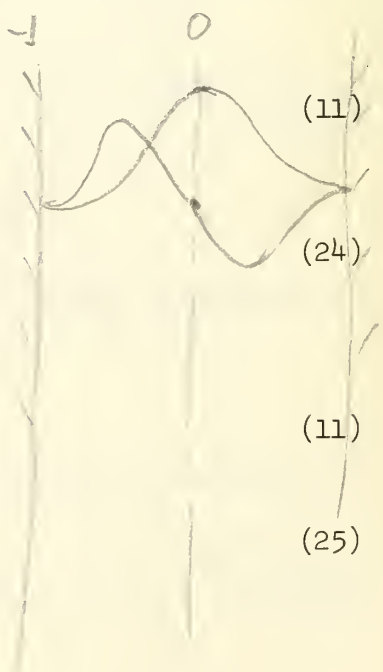
and

$$\Phi'_{nm}(0) = \Phi'''_{nm}(0) = 0 \tag{24}$$

While for odd solutions

$$\Phi_{nm}(-1) = \Phi'_{nm}(-1) = 0 \tag{11}$$

$$\Phi_{nm}(0) = \Phi''_{nm}(0) = 0 \tag{25}$$



In terms of the finite difference model the two conditions to be satisfied at the center of the channel ($y = 0$) for even solutions are

$$\Phi_{\frac{N-1}{2}} = \Phi_{\frac{N+3}{2}} \; ; \qquad \theta_{\frac{N-1}{2}} = \theta_{\frac{N+3}{2}} \tag{26}$$

Notice that because of the relation (8) the second condition in (26) implicity satisfies the second condition in (24). The matrix formulation remains the same except the order of the various matrices and vectors is reduced from N - 2 to $\frac{N-1}{2}$. The various matrices previously defined become

$$\overline{B} = \begin{bmatrix} \omega & 1 & 0 & 0 & 0 & . & . \\ 1 & \omega & 1 & 0 & 0 & . & . \\ & . & & & & & \\ & . & & & & & \\ & . & & & & & \\ 0 & 0 & . & . & . & . & 2\ \omega \end{bmatrix} \qquad \overline{P} = \begin{bmatrix} 8 & -\frac{1}{2} & 0 & 0 & 0 & . & . \\ & . & & & & & \\ & . & & & & & \\ & . & & & & & \\ 0 & 0 & . & . & . & . & 0 \end{bmatrix}$$

$$\overline{\theta} = \begin{bmatrix} \theta_2 \\ . \\ . \\ . \\ . \\ . \\ \theta_{\frac{N+1}{2}} \end{bmatrix} \qquad \overline{\Phi} = \begin{bmatrix} \Phi_2 \\ . \\ . \\ . \\ \Phi_{\frac{N+1}{2}} \end{bmatrix} \qquad \overline{\gamma} = \begin{bmatrix} \theta_1 \\ 0 \\ . \\ . \\ . \\ 0 \end{bmatrix}$$

$$\overline{\Lambda}(n_J) = \begin{bmatrix} n_2 & 0 & 0 & . & . & & \\ 0 & n_3 & 0 & . & . & & \\ & . & & & & & \\ & . & & & & & \\ & . & & & & & \\ 0 & 0 & . & . & . & . & n_{\frac{N+1}{2}} \end{bmatrix}$$

In our solution there were N = 201 grid points in the y direction, so for even solutions $\overline{\overline{W}}$ is a complex (100) x (100) matrix. Therefore, for each value of α, n, and R_e there are 100 eigenvalues (β_{nm}'s, m = 1, ... 100) and for each β_{nm} there is one eigenfunction, $\Phi_{nm}(y)$ (or in the finite difference notation, $(\Phi_J)_{nm}$ J = 1,100).

For odd solutions the two boundary conditions at the channel centerline are

$$\Phi_{\frac{N+1}{2}} = \theta_{\frac{N+1}{2}} = 0$$

The order of the various matrices and vectors previously defined is reduced to $\frac{N-3}{2}$. The matrices become

$$\overline{\overline{B}} = \begin{bmatrix} \omega & 1 & 0 & 0 & 0 & . & . \\ 1 & \omega & 1 & 0 & 0 & . & . \\ & . & & & & & \\ & . & & & & & \\ & . & & & & & \\ 0 & 0 & . & . & . & . & 1 \quad \omega \end{bmatrix}$$

$$\overline{\theta} = \begin{bmatrix} \theta_2 \\ . \\ . \\ . \\ \theta_{\frac{N-1}{2}} \end{bmatrix} \qquad \overline{\Phi} = \begin{bmatrix} \Phi_2 \\ . \\ . \\ . \\ \Phi_{\frac{N-1}{2}} \end{bmatrix}$$

$$\overline{\gamma} = \begin{bmatrix} \theta_1 \\ 0 \\ . \\ . \\ . \\ 0 \end{bmatrix}$$

$$\bar{P} = \begin{bmatrix} 8 & -\frac{1}{5} & 0 & 0 & 0 & \cdot & \cdot \\ 0 & 0 & \cdot & \cdot & \cdot & \cdot & \cdot \\ & \cdot & & & & & \\ & \cdot & & & & & \\ & \cdot & & & & & \\ 0 & 0 & 0 & \cdot & \cdot & 0 & 0 \end{bmatrix}$$

$$\bar{\Lambda}(n_J) = \begin{bmatrix} n_2 & 0 & 0 & \cdot & \cdot & & \\ 0 & n_3 & 0 & \cdot & \cdot & \cdot & \cdot \\ & \cdot & & & & & \\ & \cdot & & & & & \\ & \cdot & & & & & \\ 0 & 0 & \cdot & \cdot & \cdot & \cdot & n_{\frac{N-1}{2}} \end{bmatrix}$$

For odd solutions we obtain 99 eigenvalues and eigenvectors.

The eigenvalues and eigenvectors of $\bar{W}$ (equation 22) were computed by means of the QR algorithm (Wilkinson 1965 or Fair 1971) and the inverse of the matrix $\bar{B}$ was computed by the Gauss-Jordon method. Standard I.B.M. scientific subroutines were used for computing the eigenvalues-vectors (ALLMAT) and the inverse of $\bar{B}$ (MINV). All calculations were performed in double precision (sixteen decimal digits) on an IBM 360/67 computer requiring about 560,000 bytes of storage. The total running time to compute the eigenvalues and eigenvectors for one 100 x 100 matrix was approximately twenty minutes.

4. Results

A large number of calculations were made for the special case of $\alpha = 1.0$ and $R_e = 6667$. Although this is admittedly a highly selective choice from the infinite combination of α's and R_e's, this case has

been frequently examined because of the extensive calculations of Thomas (1953). We have computed the eigenvalues and eigenfunctions for both even and odd solutions for n = 1,2,3,4 in equation (10).

We shall number the eigenvalues and eigenfunctions in order of increasing imaginary part of β_{nm}(m = 1, 199). That is β_{11} and Φ_{11} are the least stable eigenvalue and eigenfunction respectively for the case n = 1. Although our calculation procedure actually computes 199 eigenvalues and eigenfunctions (100 even Φ_{nm}'s and 99 odd) for every n, we shall present herein only the first 8 eigenfunctions for each n(4 even and 4 odd). In the following section we present tabulations of all the eigenvalues (β_{nm} n = 1,2,3,4, m = 1,2...199) and plots and tabulations for the eigenfunctions, Φ_{nm} n=1,2,3,4; m=1,2...8. The tabulated values of the Φ_{nm} have been normalized so that for even eigenfunctions $\Phi_{nm}(0) = 1.0$. The odd eigenfunctions have not been normalized.

Another useful parameter is the adjoint eigenvector of equation (22). Consider the matrix equation

$$\bar{\bar{W}}^T \bar{\chi}_{nm} = i \beta_{nm} \bar{\chi}_{nm} \tag{27}$$

where $\bar{\bar{W}}^T$ is the transpose of the matrix, $\bar{\bar{W}}$, defined by equation (23). The eigenvalues, β_{nm}, of equation (27) are the same as those of (22) and it is easy to show that the following orthogonality relationship exist between the eigenvectors, $\bar{\Phi}_{nm}$, and $\bar{\chi}_{nm}$. (See for example Meirovitch 1967.)

$$\bar{\Phi}_{nm}^T \bar{\chi}_{nk} = \delta_{mk} \qquad \delta_{mk} = 0 \quad m \neq k \qquad = 1 \quad m = k \tag{28}$$

The relation (28) is the finite difference analogue of the analytical relationship

$$\int_{-1}^{1} \Phi_{nm}(y)\, \chi_{nk}(y)\, dy = \delta_{mk} \tag{28a}$$

where

$$\chi_{nk} = (D^2 - n^2 \alpha^2)\, \tilde{\Phi}_{nk} \tag{28b}$$

and $\tilde{\Phi}_{nk}$ is the solution to the adjoint to the Orr-Sommerfeld equation (10). (Shensted 1961.) The adjoint eigenvectors, $\bar{\chi}_{nm}$, are also given in the tables for $\alpha = 1.0$, $R_e = 6667$, $n = 1,2,3,4$ and $m = 1,2,\ldots 8$.

We have made no attempt to determine the precise accuracy of our solutions. We can, however, point out that our solution for Φ_{11}, for $\alpha = 1.0$, $R_e = 6667$ is in good agreement with the Φ_{11} given by Thomas (1953) as shown in Figure 3. Thomas' calculations for the eigenvalue, β_{11}, for $\alpha = 1.0$, $R_e = 1067$ and $R_e = 6667$ respectively were

$$\beta_{11} = .4847 + i\ .0393$$

$$\beta_{11} = .3563 - i\ .0055$$

For the present calculations we obtain

$$\beta_{11} = .4891 + i\ .0393$$

$$\beta_{11} = .3593 - i\ .0041$$

For the higher eigenvalues and eigenfunctions we have found no similar comparisons. We have, however, utilized some of the higher eigenfunctions as initial conditions in a numerical integration of the exact vorticity equations (4) (Gawain and Clark). From this exact solution we have found that there is good agreement between the β_{nm}

from equation (22) and the computed phase velocities and energy growth rates from a completely different solution to equation (6). For example, the matrix solution presented herein gave the following values:

$$\beta_{17} = 1.363 + i\ .136; \quad \beta_{28} = 1.403 + i\ .192$$

$$\beta_{22} = 1.462 + i\ .0742\ .$$

By using modes Φ_{17}, Φ_{28} and Φ_{22} as initial conditions in the numerical integration scheme described in Reference 2 and by computing the disturbance energy decay and phase velocity, the following values were obtained:

$$\beta_{17} = 1.351 + i\ .138; \quad \beta_{28} = 1.425 + i\ .207$$

$$\beta_{22} = 1.456 + i\ .0764.$$

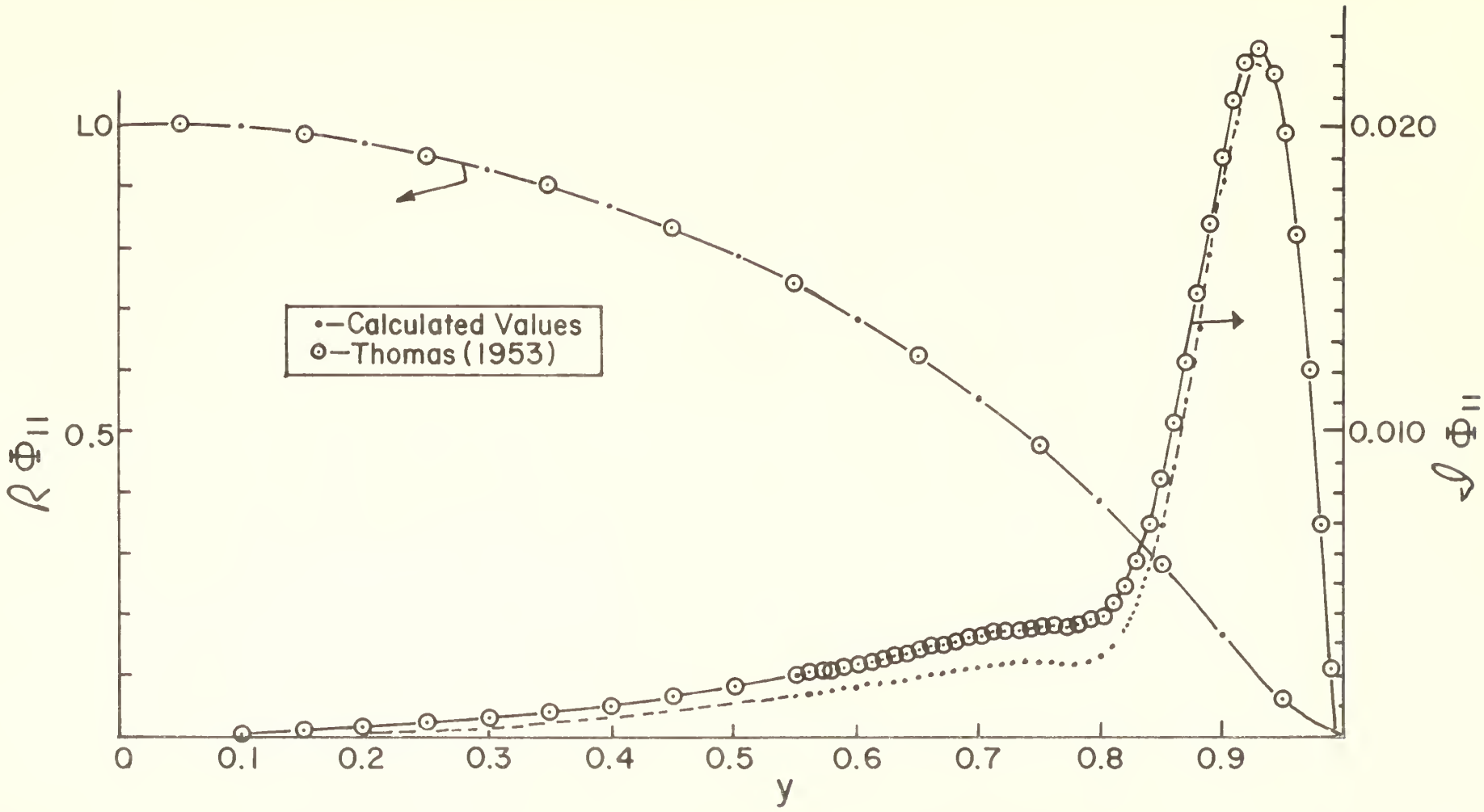


Figure 3. Comparison of the Eigenfunction, Φ_{11}, for R_e=6667, α= 1.0.

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Tables of β_{nm} and Φ_{nm} for

$\alpha = 1.0, \quad R_e = 6667$

In the following tables we list the eigenvalues, β_{nm}, for $n = 1,2,3,$ and 4; $m = 1,2,\ldots 199$ and the first eight eigenfunctions, Φ_{nm}, $m = 1,2,3,\ldots 8$ for each n.

The symbol E or O printed to the left of each β_{nm} indicates whether that particular eigenvalue, β_{nm}, corresponds to an even or odd eigenfunction, respectively.

Note: The signs of the tabulated β_{nm}'s should be reversed to be consistent with the present formulation, i.e., the actual eigenvalue is $-\beta_{nm}$ where β_{nm} is the tabulated value.

EIGENVALUES, BETA$_{NM}$, FOR ALPHA=1.0, REYNOLDS NUM=6667

N= 1

M	REAL	IMAGINARY	M	REAL	IMAGINARY
1	-.35928937 00	0.40853998-02	61	-.1004957E 01	-.1289087E 01
2	-.14491729 01	-.51897508-01	62	-.1004967E 01	-.1329426E 01
3	-.14470829 01	-.52774308-01	63	-.1004740E 01	-.1370164E 01
4	-.41626013 00	-.78532108-01	64	-.1004775E 01	-.1411228E 01
5	-.14048023 01	-.94801258-01	65	-.1004573E 01	-.1452695E 01
6	-.14042428 01	-.95140588-01	66	-.1004622E 01	-.1494452E 01
7	-.13644117 01	-.13628588 00	67	-.1004436E 01	-.1536611E 01
8	-.13627648 01	-.13686458 00	68	-.1004504E 01	-.1579030E 01
9	-.13207348 01	-.17886848 00	69	-.1004340E 01	-.1621851E 01
10	-.13201798 01	-.17940298 00	70	-.1004416E 01	-.1664897E 01
11	-.52412508 00	-.18878028 00	71	-.1004264E 01	-.1708341E 01
12	-.62335528 00	-.21118978 00	72	-.1004354E 01	-.1751980E 01
13	-.12806538 01	-.22049808 00	73	-.1004219E 01	-.1796013E 01
14	-.12789248 01	-.22091238 00	74	-.1004313E 01	-.1840208E 01
15	-.12371168 01	-.26290618 00	75	-.1004189E 01	-.1884788E 01
16	-.12367538 01	-.26363788 00	76	-.1004294E 01	-.1929503E 01
17	-.28345838 00	-.27376918 00	77	-.1004187E 01	-.1974595E 01
18	-.31669388 00	-.29742628 00	78	-.1004292E 01	-.2019790E 01
19	-.11975178 01	-.30468908 00	79	-.1004193E 01	-.2065350E 01
20	-.11955158 01	-.30495108 00	80	-.1004307E 01	-.2110987E 01
21	-.79504518 00	-.31548298 00	81	-.1004222E 01	-.2156977E 01
22	-.71070128 00	-.31714908 00	82	-.1004336E 01	-.2203013E 01
23	-.11538838 01	-.34694068 00	83	-.1004257E 01	-.2249389E 01
24	-.11539228 01	-.34788028 00	84	-.1004378E 01	-.2295787E 01
25	-.54801688 00	-.35954908 00	85	-.1004313E 01	-.2342507E 01
26	-.11124228 01	-.38864218 00	86	-.1004433E 01	-.2389222E 01
27	-.11149368 01	-.38894268 00	87	-.1004373E 01	-.2436243E 01
28	-.57089988 00	-.39759738 00	88	-.1004498E 01	-.2483234E 01
29	-.95042538 00	-.39793348 00	89	-.1004451E 01	-.2530515E 01
30	-.87732958 00	-.40698848 00	90	-.1004575E 01	-.2577737E 01
31	-.10735788 01	-.42844728 00	91	-.1004532E 01	-.2625231E 01
32	-.10709258 01	-.43239008 00	92	-.1004661E 01	-.2672644E 01
33	-.76209828 00	-.43369368 00	93	-.1004629E 01	-.2720308E 01
34	-.10289798 01	-.46520428 00	94	-.1004757E 01	-.2767865E 01
35	-.10461458 01	-.47376088 00	95	-.1004729E 01	-.2815654E 01
36	-.77583778 00	-.47385978 00	96	-.1004862E 01	-.2863313E 01
37	-.94484618 00	-.49477028 00	97	-.1004845E 01	-.2911184E 01
38	-.10184118 01	-.50328248 00	98	-.1004976E 01	-.2958899E 01
39	-.10239428 01	-.53313938 00	99	-.1004964E 01	-.3006858E 01
40	-.95381028 00	-.53443358 00	100	-.1005099E 01	-.3054533E 01
41	-.10131718 01	-.56876138 00	101	-.1005097E 01	-.3102431E 01
42	-.10128458 01	-.60023778 00	102	-.1005233E 01	-.3150126E 01
43	-.10106578 01	-.63304268 00	103	-.1005235E 01	-.3197970E 01
44	-.10101818 01	-.66583358 00	104	-.1005374E 01	-.3245590E 01
45	-.10094068 01	-.69991438 00	105	-.1005386E 01	-.3293337E 01
46	-.10089958 01	-.73261858 00	106	-.1005527E 01	-.3340835E 01
47	-.10084418 01	-.76661558 00	107	-.1005544E 01	-.3388437E 01
48	-.10081208 01	-.80120878 00	108	-.1005688E 01	-.3435771E 01
49	-.10076428 01	-.83611748 00	109	-.1005715E 01	-.3483186E 01
50	-.10073938 01	-.87158868 00	110	-.1005861E 01	-.3530310E 01
51	-.10069658 01	-.90739248 00	111	-.1005894E 01	-.3577493E 01
52	-.10067838 01	-.94372628 00	112	-.1006044E 01	-.3624365E 01
53	-.10064048 01	-.98040918 00	113	-.1006088E 01	-.3671273E 01
54	-.10062738 01	-.10175888 01	114	-.1006241E 01	-.3717848E 01
55	-.10059308 01	-.10551298 01	115	-.1006290E 01	-.3764437E 01
56	-.10058488 01	-.10931358 01	116	-.1006451E 01	-.3810674E 01
57	-.10055438 01	-.11315168 01	117	-.1006511E 01	-.3856901E 01
58	-.10054958 01	-.11703238 01	118	-.1006675E 01	-.3902756E 01
59	-.10052178 01	-.12095178 01	119	-.1006742E 01	-.3948579E 01
60	-.10052048 01	-.12491048 01	120	-.1006914E 01	-.3994011E 01

EIGENVALUES, BETA ,FOR ALPHA=1.0, REYNOLDS NUM=6667
NM

N= 1
CONTINUED

M	REAL	IMAGINARY
E121	-.10066994E 01	-.40393896E 01
0122	-.10071726E 01	-.40843576E 01
E123	-.10072616E 01	-.41292486E 01
0124	-.10074496E 01	-.41737136E 01
E125	-.10075526E 01	-.42180786E 01
0126	-.10077486E 01	-.42619996E 01
E127	-.10078636E 01	-.43057996E 01
0128	-.10080716E 01	-.43491386E 01
E129	-.10082036E 01	-.43923366E 01
0130	-.10084226E 01	-.44350576E 01
E131	-.10085696E 01	-.44776136E 01
0132	-.10088046E 01	-.45196806E 01
E133	-.10089716E 01	-.45615636E 01
0134	-.10092236E 01	-.46029416E 01
E135	-.10094106E 01	-.46441146E 01
0136	-.10096846E 01	-.46847726E 01
E137	-.10098956E 01	-.47252046E 01
0138	-.10101916E 01	-.47651086E 01
E139	-.10104286E 01	-.48047706E 01
0140	-.10107536E 01	-.48438926E 01
E141	-.10110246E 01	-.48827556E 01
0142	-.10113786E 01	-.49210686E 01
E143	-.10116846E 01	-.49591056E 01
0144	-.10120786E 01	-.49965856E 01
E145	-.10124276E 01	-.50337746E 01
0146	-.10128636E 01	-.50703966E 01
E147	-.10132596E 01	-.51067156E 01
0148	-.10137476E 01	-.51424626E 01
E149	-.10142026E 01	-.51778946E 01
0150	-.10147496 01	-.52127496 01

M	REAL	IMAGINARY
*E151	-.10152686 01	-.5247276E 01
*0152	-.10158866 01	-.5281226E 01
*E153	-.10164836 01	-.5314841E 01
*0154	-.10171816 01	-.5347876E 01
*E155	-.10178676 01	-.5380569E 01
*0156	-.10186696 01	-.5412685E 01
*E157	-.10195136 01	-.5444506 01
*0158	-.10205586 01	-.5476417E 01
*E159	-.10101656 01	-.5511032E 01
*0160	-.10075406 01	-.5518182E 01
*E161	-.10290196 01	-.5519777E 01
*0162	-.10525886 01	-.5543571E 01
*0163	-.92824746 00	-.5547045E 01
*0164	-.92833686 00	-.5547055E 01
*E165	-.10730446 01	-.5565171E 01
*E166	-.84238086 00	-.5582403E 01
*0167	-.84247526 00	-.5582416E 01
*0168	-.10934666 01	-.5586428E 01
*E169	-.11139546 01	-.5607651E 01
*E170	-.75052986 00	-.5622739E 01
*0171	-.75063026 00	-.5622751E 01
*0172	-.11344826 01	-.5628871E 01
*E173	-.11550526 01	-.5650092E 01
*E174	-.65085026 00	-.5669168E 01
*0175	-.65095756 00	-.5669181E 01
*0176	-.11756586 01	-.5671311E 01
*E177	-.11963046 01	-.5692531E 01
*E178	-.12169876 01	-.5713749E 01
*E179	-.54033466 00	-.5723520E 01
*0180	-.54045016 00	-.5723536E 01
*E181	-.12377096 01	-.5734966E 01
*0182	-.12584696 01	-.5756183E 01
*E183	-.12792676 01	-.5777399E 01
*E184	-.41325586 00	-.5789291E 01
*0185	-.41338136 00	-.5789310E 01
*0186	-.13001026 01	-.5798615E 01
*E187	-.13209776 01	-.5819830E 01
*0188	-.13418876 01	-.5841044E 01
*E189	-.13628396 01	-.5862259E 01
*E190	-.25487106 00	-.5875456E 01
*0191	-.25500976 00	-.5875481E 01
*0192	-.13838246 01	-.5883473E 01
*E193	-.14043516 01	-.5904686E 01
*0194	-.14259136 01	-.5925900E 01
*E195	-.14470156 01	-.5947113E 01
*E196	-.14681516 01	-.5968327E 01
*E197	-.14893316 01	-.5989538E 01
*0198	-.25521206-01	-.7553646 01
*E199	-.22386206-01	-.7567841E 01

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

PHI 11 REAL	PHI 11 IMAGINARY	Y	PHI 12 REAL	PHI 12 IMAGINARY
0.0	0.0	1.00	0.0	0.0
0.0029278	0.0022860	0.99	0.0000478	0.0000118
0.0113652	0.0069917	0.98	0.0001537	0.0000054
0.0242786	0.0121056	0.97	0.0002770	-0.0000261
0.0405675	0.0165096	0.96	0.0003993	-0.0000731
0.0592719	0.0196871	0.95	0.0005166	-0.0001269
0.0796400	0.0214987	0.94	0.0006302	-0.0001797
0.1011232	0.0221241	0.93	0.0007420	-0.0002326
0.1233388	0.0214602	0.92	0.0008536	-0.0002847
0.1460248	0.0200554	0.91	0.0009656	-0.0003363
0.1689973	0.0180706	0.90	0.0010781	-0.0003878
0.1921165	0.0157542	0.89	0.0011912	-0.0004395
0.2152631	0.0133260	0.88	0.0013048	-0.0004913
0.2383246	0.0109677	0.87	0.0014188	-0.0005434
0.2611898	0.0088163	0.86	0.0015334	-0.0005957
0.2837500	0.0069628	0.85	0.0016485	-0.0006483
0.3059032	0.0054534	0.84	0.0017643	-0.0007012
0.3275608	0.0042955	0.83	0.0018808	-0.0007544
0.3486529	0.0034649	0.82	0.0019980	-0.0008079
0.3691322	0.0029158	0.81	0.0021160	-0.0008618
0.3889748	0.0025906	0.80	0.0022349	-0.0009161
0.4081792	0.0024287	0.79	0.0023547	-0.0009709
0.4267614	0.0023737	0.78	0.0024755	-0.0010261
0.4447508	0.0023785	0.77	0.0025974	-0.0010818
0.4621848	0.0024074	0.76	0.0027205	-0.0011381
0.4791033	0.0024361	0.75	0.0028448	-0.0011950
0.4955446	0.0024511	0.74	0.0029704	-0.0012525
0.5115436	0.0024464	0.73	0.0030975	-0.0013108
0.5271301	0.0024221	0.72	0.0032260	-0.0013698
0.5423282	0.0023809	0.71	0.0033561	-0.0014295
0.5571572	0.0023272	0.70	0.0034880	-0.0014902
0.5716324	0.0022653	0.69	0.0036216	-0.0015517
0.5857662	0.0021988	0.68	0.0037571	-0.0016143
0.5995685	0.0021303	0.67	0.0038947	-0.0016780
0.6130484	0.0020615	0.66	0.0040344	-0.0017428
0.6262138	0.0019934	0.65	0.0041765	-0.0018089
0.6390722	0.0019264	0.64	0.0043211	-0.0018764
0.6516306	0.0018606	0.63	0.0044684	-0.0019454
0.6638958	0.0017960	0.62	0.0046188	-0.0020158
0.6758743	0.0017325	0.61	0.0047724	-0.0020877
0.6875722	0.0016701	0.60	0.0049294	-0.0021608
0.6989956	0.0016087	0.59	0.0050898	-0.0022350
0.7101498	0.0015484	0.58	0.0052533	-0.0023100
0.7210401	0.0014891	0.57	0.0054194	-0.0023858
0.7316714	0.0014309	0.56	0.0055871	-0.0024628
0.7420484	0.0013738	0.55	0.0057552	-0.0025420
0.7521756	0.0013177	0.54	0.0059225	-0.0026258
0.7620572	0.0012629	0.53	0.0060887	-0.0027176
0.7716972	0.0012091	0.52	0.0062548	-0.0028224
0.7810994	0.0011565	0.51	0.0064245	-0.0029461

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 11			PHI 12	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.7902675	0.0011050 *	0.50 *	0.0066053	-0.0030946
0.7992051	0.0010546 *	0.49 *	0.0068093	-0.0032716
0.8079154	0.0010054 *	0.48 *	0.0070532	-0.0034766
0.8164017	0.0009573 *	0.47 *	0.0073574	-0.0037011
0.8246673	0.0009103 *	0.46 *	0.0077435	-0.0039260
0.8327144	0.0008645 *	0.45 *	0.0082293	-0.0041182
0.8405465	0.0008198 *	0.44 *	0.0088228	-0.0042299
0.8481660	0.0007762 *	0.43 *	0.0095137	-0.0041995
0.8555758	0.0007337 *	0.42 *	0.0102648	-0.0039569
0.8627781	0.0006923 *	0.41 *	0.0110039	-0.0034320
0.8697754	0.0006520 *	0.40 *	0.0116182	-0.0025686
0.8765709	0.0006128 *	0.39 *	0.0119531	-0.0013411
0.8831640	0.0005747 *	0.38 *	0.0118170	0.0002258
0.8895597	0.0005377 *	0.37 *	0.0109944	0.0020376
0.8957590	0.0005017 *	0.36 *	0.0092663	0.0039129
0.9017641	0.0004669 *	0.35 *	0.0064388	0.0055726
0.9075764	0.0004330 *	0.34 *	0.0023772	0.0066379
0.9131982	0.0004003 *	0.33 *	-0.0029568	0.0066396
0.9186310	0.0003686 *	0.32 *	-0.0094693	0.0050407
0.9238763	0.0003379 *	0.31 *	-0.0169046	0.0012717
0.9289361	0.0003083 *	0.30 *	-0.0248256	-0.0052238
0.9338115	0.0002797 *	0.29 *	-0.0326084	-0.0149349
0.9385043	0.0002522 *	0.28 *	-0.0394549	-0.0282275
0.9430157	0.0002257 *	0.27 *	-0.0444224	-0.0452904
0.9473472	0.0002002 *	0.26 *	-0.0464708	-0.0660913
0.9514999	0.0001757 *	0.25 *	-0.0445240	-0.0903464
0.9554751	0.0001522 *	0.24 *	-0.0375406	-0.1175092
0.9592740	0.0001298 *	0.23 *	-0.0245876	-0.1467803
0.9628976	0.0001083 *	0.22 *	-0.0049113	-0.1771390
0.9663472	0.0000879 *	0.21 *	0.0220017	-0.2073951
0.9696234	0.0000685 *	0.20 *	0.0563786	-0.2362561
0.9727277	0.0000500 *	0.19 *	0.0981340	-0.2624068
0.9756606	0.0000326 *	0.18 *	0.1468652	-0.2845920
0.9784230	0.0000161 *	0.17 *	0.2018683	-0.3016981
0.9810157	0.0000006 *	0.16 *	0.2621745	-0.3128258
0.9834397	-0.0000139 *	0.15 *	0.3266038	-0.3173492
0.9856954	-0.0000274 *	0.14 *	0.3938268	-0.3149570
0.9877837	-0.0000399 *	0.13 *	0.4624351	-0.3056738
0.9897050	-0.0000514 *	0.12 *	0.5310099	-0.2898601
0.9914600	-0.0000619 *	0.11 *	0.5981856	-0.2681934
0.9930494	-0.0000715 *	0.10 *	0.6627029	-0.2416313
0.9944735	-0.0000803 *	0.09 *	0.7234496	-0.2113613
0.9957327	-0.0000885 *	0.08 *	0.7794868	-0.1787398
0.9968269	-0.0000963 *	0.07 *	0.8300584	-0.1452270
0.9977556	-0.0001036 *	0.06 *	0.8745885	-0.1123170
0.9985180	-0.0001092 *	0.05 *	0.9126657	-0.0814727
0.9991139	-0.0001103 *	0.04 *	0.9440191	-0.0540630
0.9995453	-0.0001015 *	0.03 *	0.9684863	-0.0313077
0.9998212	-0.0000767 *	0.02 *	0.9859918	-0.0142299
0.9999622	-0.0000358 *	0.01 *	0.9964980	-0.0036187
1.0000000	0.0 *	0.0 *	1.0000000	0.0

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

PHI 13			PHI 14	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
0.0012660	0.0007372	* 0.99 *	0.0038925	-0.0130547
0.0043466	0.0014426	* 0.98 *	0.0074782	-0.0483263
0.0081327	0.0015726	* 0.97 *	0.0040445	-0.0989150
0.0120232	0.0012546	* 0.96 *	-0.0087095	-0.1587613
0.0158194	0.0007244	* 0.95 *	-0.0308745	-0.2233742
0.0195147	0.0001377	* 0.94 *	-0.0610665	-0.2898878
0.0231549	-0.0004396	* 0.93 *	-0.0971895	-0.3567761
0.0267802	-0.0009941	* 0.92 *	-0.1368412	-0.4234370
0.0304123	-0.0015325	* 0.91 *	-0.1775438	-0.4897642
0.0340591	-0.0020637	* 0.90 *	-0.2168972	-0.5557722
0.0377225	-0.0025939	* 0.89 *	-0.2527094	-0.6213146
0.0414024	-0.0031259	* 0.88 *	-0.2831309	-0.6859174
0.0450979	-0.0036607	* 0.87 *	-0.3067887	-0.7487308
0.0488109	-0.0041983	* 0.86 *	-0.3228976	-0.8085932
0.0525423	-0.0047387	* 0.85 *	-0.3313216	-0.8641784
0.0562939	-0.0052820	* 0.84 *	-0.3325633	-0.9141911
0.0600677	-0.0058283	* 0.83 *	-0.3276750	-0.9575646
0.0638655	-0.0063781	* 0.82 *	-0.3180993	-0.9936210
0.0676896	-0.0069317	* 0.81 *	-0.3054669	-1.0221615
0.0715421	-0.0074896	* 0.80 *	-0.2913880	-1.0434771
0.0754250	-0.0080523	* 0.79 *	-0.2772667	-1.0582771
0.0793408	-0.0086201	* 0.78 *	-0.2641742	-1.0675621
0.0832919	-0.0091937	* 0.77 *	-0.2527875	-1.0724745
0.0872808	-0.0097736	* 0.76 *	-0.2433990	-1.0741444
0.0913101	-0.0103603	* 0.75 *	-0.2359781	-1.0735712
0.0953827	-0.0109546	* 0.74 *	-0.2302675	-1.0715456
0.0995015	-0.0115570	* 0.73 *	-0.2258866	-1.0686226
0.1036696	-0.0121683	* 0.72 *	-0.2224262	-1.0651369
0.1078902	-0.0127894	* 0.71 *	-0.2195159	-1.0612402
0.1121668	-0.0134209	* 0.70 *	-0.2168660	-1.0569611
0.1165029	-0.0140639	* 0.69 *	-0.2142796	-1.0522566
0.1209027	-0.0147193	* 0.68 *	-0.2116457	-1.0470581
0.1253698	-0.0153881	* 0.67 *	-0.2089196	-1.0413036
0.1299091	-0.0160716	* 0.66 *	-0.2061000	-1.0349512
0.1345246	-0.0167709	* 0.65 *	-0.2032078	-1.0279856
0.1392215	-0.0174872	* 0.64 *	-0.2002704	-1.0204163
0.1440046	-0.0182220	* 0.63 *	-0.1973118	-1.0122652
0.1488793	-0.0189767	* 0.62 *	-0.1943487	-1.0035658
0.1538513	-0.0197532	* 0.61 *	-0.1913894	-0.9943519
0.1589261	-0.0205537	* 0.60 *	-0.1884369	-0.9846570
0.1641098	-0.0213807	* 0.59 *	-0.1854893	-0.9745104
0.1694094	-0.0222378	* 0.58 *	-0.1825435	-0.9639377
0.1748323	-0.0231291	* 0.57 *	-0.1795961	-0.9529608
0.1803881	-0.0240593	* 0.56 *	-0.1766441	-0.9415990
0.1860877	-0.0250337	* 0.55 *	-0.1736856	-0.9298695
0.1919446	-0.0260569	* 0.54 *	-0.1707191	-0.9177884
0.1979749	-0.0271324	* 0.53 *	-0.1677440	-0.9053710
0.2041969	-0.0282604	* 0.52 *	-0.1647600	-0.8926314
0.2106295	-0.0294370	* 0.51 *	-0.1617666	-0.8795834

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 13			PHI 14	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.2172902	-0.0306527	0.50	-0.1587642	-0.8662401
0.2241914	-0.0318925	0.49	-0.1557526	-0.8526140
0.2313363	-0.0331369	0.48	-0.1527316	-0.8387170
0.2387143	-0.0343661	0.47	-0.1497013	-0.8245606
0.2462971	-0.0355660	0.46	-0.1466618	-0.8101553
0.2540373	-0.0367380	0.45	-0.1436130	-0.7955115
0.2618700	-0.0379104	0.44	-0.1405553	-0.7806390
0.2697202	-0.0391512	0.43	-0.1374885	-0.7655471
0.2775158	-0.0405798	0.42	-0.1344128	-0.7502448
0.2852073	-0.0423755	0.41	-0.1313285	-0.7347406
0.2927927	-0.0447788	0.40	-0.1282357	-0.7190429
0.3003468	-0.0480842	0.39	-0.1251345	-0.7031595
0.3080491	-0.0526208	0.38	-0.1220252	-0.6870978
0.3162089	-0.0587211	0.37	-0.1189080	-0.6708656
0.3252799	-0.0666780	0.36	-0.1157830	-0.6544694
0.3358616	-0.0766940	0.35	-0.1126506	-0.6379163
0.3486819	-0.0888247	0.34	-0.1095109	-0.6212127
0.3645599	-0.1029274	0.33	-0.1063641	-0.6043650
0.3843492	-0.1186175	0.32	-0.1032104	-0.5873792
0.4088629	-0.1352426	0.31	-0.1000503	-0.5702613
0.4387889	-0.1518809	0.30	-0.0968837	-0.5530168
0.4745998	-0.1673653	0.29	-0.0937110	-0.5356517
0.5164697	-0.1803377	0.28	-0.0905324	-0.5181710
0.5642053	-0.1893300	0.27	-0.0873480	-0.5005801
0.6172016	-0.1928667	0.26	-0.0841582	-0.4828839
0.6744277	-0.1895808	0.25	-0.0809631	-0.4650874
0.7344471	-0.1783330	0.24	-0.0777630	-0.4471955
0.7954729	-0.1583244	0.23	-0.0745582	-0.4292127
0.8554537	-0.1291889	0.22	-0.0713487	-0.4111438
0.9121851	-0.0910594	0.21	-0.0681348	-0.3929931
0.9634349	-0.0445987	0.20	-0.0649168	-0.3747650
1.0070734	0.0090073	0.19	-0.0616949	-0.3564638
1.0412016	0.0680931	0.18	-0.0584692	-0.3380935
1.0642481	0.1305926	0.17	-0.0552400	-0.3196584
1.0750608	0.1941442	0.16	-0.0520075	-0.3011624
1.0729504	0.2562159	0.15	-0.0487719	-0.2826095
1.0577078	0.3142394	0.14	-0.0455333	-0.2640035
1.0295868	0.3657433	0.13	-0.0422921	-0.2453482
0.9892548	0.4084775	0.12	-0.0390484	-0.2266474
0.9377217	0.4405205	0.11	-0.0358023	-0.2079048
0.8762504	0.4603640	0.10	-0.0325542	-0.1891240
0.8062590	0.4669734	0.09	-0.0293042	-0.1703088
0.7292230	0.4598206	0.08	-0.0260524	-0.1514625
0.6465856	0.4388934	0.07	-0.0227991	-0.1325887
0.5596808	0.4046807	0.06	-0.0195445	-0.1136909
0.4696774	0.3581403	0.05	-0.0162886	-0.0947726
0.3775439	0.3006506	0.04	-0.0130316	-0.0758373
0.2840357	0.2339517	0.03	-0.0097736	-0.0568886
0.1897076	0.1600788	0.02	-0.0065150	-0.0379304
0.0949425	0.0812916	0.01	-0.0032567	-0.0189665
0.0	0.0	0.0	0.0	0.0

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

	PHI 15			PHI 16	
	REAL	IMAGINARY	Y	REAL	IMAGINARY
	0.0	0.0	* 1.00 *	0.0	0.0
	-0.0014815	0.0012040	* 0.99 *	0.0000846	-0.0000119
	-0.0037728	0.0046731	* 0.98 *	0.0002525	-0.0000920
	-0.0056689	0.0093089	* 0.97 *	0.0004323	-0.0002260
	-0.0070349	0.0142946	* 0.96 *	0.0005998	-0.0003857
	-0.0080738	0.0192586	* 0.95 *	0.0007542	-0.0005520
	-0.0089862	0.0241133	* 0.94 *	0.0009013	-0.0007171
	-0.0098838	0.0288863	* 0.93 *	0.0010459	-0.0008794
	-0.0108055	0.0336256	* 0.92 *	0.0011907	-0.0010399
	-0.0117534	0.0383647	* 0.91 *	0.0013364	-0.0011997
	-0.0127188	0.0431198	* 0.90 *	0.0014832	-0.0013598
	-0.0136934	0.0478964	* 0.89 *	0.0016309	-0.0015214
	-0.0146727	0.0526953	* 0.88 *	0.0017792	-0.0016818
	-0.0156551	0.0575168	* 0.87 *	0.0019282	-0.0018440
	-0.0166418	0.0623615	* 0.86 *	0.0020778	-0.0020071
	-0.0176305	0.0672313	* 0.85 *	0.0022282	-0.0021709
	-0.0186247	0.0721281	* 0.84 *	0.0023794	-0.0023358
	-0.0196241	0.0770548	* 0.83 *	0.0025315	-0.0025016
	-0.0206291	0.0820140	* 0.82 *	0.0026845	-0.0026686
	-0.0216400	0.0870087	* 0.81 *	0.0028386	-0.0028368
	-0.0226569	0.0920418	* 0.80 *	0.0029937	-0.0030063
	-0.0236802	0.0971165	* 0.79 *	0.0031501	-0.0031773
	-0.0247101	0.1022360	* 0.78 *	0.0033078	-0.0033498
	-0.0257468	0.1074038	* 0.77 *	0.0034669	-0.0035241
	-0.0267906	0.1126233	* 0.76 *	0.0036275	-0.0037001
	-0.0278417	0.1178985	* 0.75 *	0.0037896	-0.0038781
	-0.0289002	0.1232332	* 0.74 *	0.0039534	-0.0040582
	-0.0299662	0.1286316	* 0.73 *	0.0041189	-0.0042405
	-0.0310400	0.1340983	* 0.72 *	0.0042862	-0.0044252
	-0.0321215	0.1396381	* 0.71 *	0.0044554	-0.0046125
	-0.0332108	0.1452560	* 0.70 *	0.0046264	-0.0048027
	-0.0343081	0.1509575	* 0.69 *	0.0047994	-0.0049962
	-0.0354137	0.1567485	* 0.68 *	0.0049747	-0.0051936
	-0.0365281	0.1626348	* 0.67 *	0.0051528	-0.0053952
	-0.0376519	0.1686225	* 0.66 *	0.0053345	-0.0056016
	-0.0387855	0.1747171	* 0.65 *	0.0055210	-0.0058126
	-0.0399288	0.1809240	* 0.64 *	0.0057136	-0.0060274
	-0.0410805	0.1872480	* 0.63 *	0.0059133	-0.0062439
	-0.0422371	0.1936944	* 0.62 *	0.0061198	-0.0064592
	-0.0433919	0.2002698	* 0.61 *	0.0063305	-0.0066692
	-0.0445354	0.2069842	* 0.60 *	0.0065395	-0.0068706
	-0.0456556	0.2138537	* 0.59 *	0.0067367	-0.0070625
	-0.0467496	0.2209032	* 0.58 *	0.0069086	-0.0072496
	-0.0477835	0.2281678	* 0.57 *	0.0070401	-0.0074459
	-0.0487888	0.2356927	* 0.56 *	0.0071199	-0.0076771
	-0.0497802	0.2435287	* 0.55 *	0.0071472	-0.0079822
	-0.0508073	0.2517232	* 0.54 *	0.0071412	-0.0084100
	-0.0519496	0.2603047	* 0.53 *	0.0071510	-0.0090113
	-0.0533093	0.2692645	* 0.52 *	0.0072624	-0.0098239
	-0.0550035	0.2785355	* 0.51 *	0.0075984	-0.0108519

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 15			PHI 16	
REAL	IMAGINARY	Y	REAL	IMAGINARY
-0.0571312	0.2879755 *	0.50 *	0.0083103	-0.0120409
-0.0597369	0.2973599 *	0.49 *	0.0095551	-0.0132546
-0.0627621	0.3063934 *	0.48 *	0.0114580	-0.0142574
-0.0659957	0.3147429 *	0.47 *	0.0140623	-0.0147136
-0.0690330	0.3221994 *	0.46 *	0.0172734	-0.0142075
-0.0712579	0.3282638 *	0.45 *	0.0208038	-0.0122922
-0.0718603	0.3332491 *	0.44 *	0.0241346	-0.0085666
-0.0698985	0.3373854 *	0.43 *	0.0265061	-0.0027760
-0.0644115	0.3414075 *	0.42 *	0.0269498	0.0050736
-0.0545751	0.3465025 *	0.41 *	0.0243692	0.0146076
-0.0398887	0.3542969 *	0.40 *	0.0176705	0.0249983
-0.0203672	0.3667679 *	0.39 *	0.0059346	0.0349297
0.0032926	0.3860762 *	0.38 *	-0.0113900	0.0426268
0.0296035	0.4143243 *	0.37 *	-0.0342965	0.0459617
0.0562682	0.4532681 *	0.36 *	-0.0620654	0.0426352
0.0802677	0.5046123 *	0.35 *	-0.0931734	0.0304214
0.0980645	0.5667329 *	0.34 *	-0.1252934	0.0074498
0.1059092	0.6404721 *	0.33 *	-0.1553975	-0.0275097
0.1002218	0.7230422 *	0.32 *	-0.1799642	-0.0747995
0.0780052	0.8111667 *	0.31 *	-0.1952727	-0.1337010
0.0372394	0.9001667 *	0.30 *	-0.1977566	-0.2023682
-0.0227966	0.9852784 *	0.29 *	-0.1843736	-0.2778851
-0.1013215	1.0616762 *	0.28 *	-0.1529475	-0.3564489
-0.1959978	1.1224518 *	0.27 *	-0.1024367	-0.4336628
-0.3030421	1.1649914 *	0.26 *	-0.0331964	-0.5049092
-0.4174896	1.1853943 *	0.25 *	0.0534579	-0.5657591
-0.5335864	1.1817961 *	0.24 *	0.1544331	-0.6123729
-0.6452628	1.1539354 *	0.23 *	0.2659929	-0.6418445
-0.7466381	1.1031675 *	0.22 *	0.3836278	-0.6524523
-0.8324971	1.0323162 *	0.21 *	0.5025245	-0.6437911
-0.8986900	0.9453944 *	0.20 *	0.6179604	-0.6167732
-0.9424188	0.8472160 *	0.19 *	0.7256694	-0.5735077
-0.9623827	0.7429619 *	0.18 *	0.8221441	-0.5170718
-0.9587839	0.6377361 *	0.17 *	0.9048432	-0.4512115
-0.9331987	0.5361661 *	0.16 *	0.9722970	-0.3799999
-0.8883432	0.4426817 *	0.15 *	1.0241022	-0.3074971
-0.8277644	0.3582979 *	0.14 *	1.0608292	-0.2374392
-0.7554973	0.2865134 *	0.13 *	1.0838432	-0.1729872
-0.6757219	0.2273225 *	0.12 *	1.0950909	-0.1165498
-0.5924535	0.1803256 *	0.11 *	1.0968590	-0.0696895
-0.5092891	0.1443171 *	0.10 *	1.0915451	-0.0331090
-0.4292239	0.1175207 *	0.09 *	1.0814543	-0.0067087
-0.3545394	0.0978460 *	0.08 *	1.0686483	0.0102992
-0.2867646	0.0831354 *	0.07 *	1.0548410	0.0192374
-0.2266926	0.0713826 *	0.06 *	1.0413561	0.0217887
-0.1744438	0.0609027 *	0.05 *	1.0291300	0.0198162
-0.1295574	0.0504426 *	0.04 *	1.0187569	0.0151913
-0.0913963	0.0392316 *	0.03 *	1.0105648	0.0096401
-0.0577565	0.0269691 *	0.02 *	1.0046911	0.0046141
-0.0279701	0.0137589 *	0.01 *	1.0011711	0.0011902
0.0	0.0 *	0.0 *	1.0000000	0.0

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

PHI 17			PHI 18	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
0.0001149	-0.0000356	* 0.99 *	-0.0011424	-0.0011552
0.0003319	-0.0001866	* 0.98 *	-0.0043051	-0.0028163
0.0005531	-0.0004179	* 0.97 *	-0.0084584	-0.0040255
0.0007498	-0.0006840	* 0.96 *	-0.0128758	-0.0047256
0.0009252	-0.0009567	* 0.95 *	-0.0172404	-0.0051278
0.0010897	-0.0012254	* 0.94 *	-0.0214890	-0.0054229
0.0012511	-0.0014891	* 0.93 *	-0.0256571	-0.0057126
0.0014132	-0.0017498	* 0.92 *	-0.0297940	-0.0060293
0.0015776	-0.0020097	* 0.91 *	-0.0339324	-0.0063719
0.0017424	-0.0022702	* 0.90 *	-0.0380872	-0.0067298
0.0019089	-0.0025319	* 0.89 *	-0.0422629	-0.0070940
0.0020762	-0.0027948	* 0.88 *	-0.0464596	-0.0074595
0.0022442	-0.0030591	* 0.87 *	-0.0506768	-0.0078246
0.0024129	-0.0033248	* 0.86 *	-0.0549148	-0.0081893
0.0025823	-0.0035920	* 0.85 *	-0.0591751	-0.0085539
0.0027526	-0.0038608	* 0.84 *	-0.0634597	-0.0089189
0.0029238	-0.0041312	* 0.83 *	-0.0677709	-0.0092843
0.0030961	-0.0044036	* 0.82 *	-0.0721112	-0.0096503
0.0032694	-0.0046781	* 0.81 *	-0.0764835	-0.0100165
0.0034446	-0.0049548	* 0.80 *	-0.0808902	-0.0103829
0.0036198	-0.0052340	* 0.79 *	-0.0853342	-0.0107490
0.0037971	-0.0055159	* 0.78 *	-0.0898184	-0.0111147
0.0039759	-0.0058006	* 0.77 *	-0.0943457	-0.0114794
0.0041563	-0.0060881	* 0.76 *	-0.0989193	-0.0118428
0.0043382	-0.0063786	* 0.75 *	-0.1035426	-0.0122041
0.0045214	-0.0066723	* 0.74 *	-0.1082191	-0.0125625
0.0047055	-0.0069695	* 0.73 *	-0.1129532	-0.0129170
0.0048901	-0.0072710	* 0.72 *	-0.1177495	-0.0132669
0.0050749	-0.0075784	* 0.71 *	-0.1226134	-0.0136118
0.0052605	-0.0078936	* 0.70 *	-0.1275502	-0.0139521
0.0054487	-0.0082191	* 0.69 *	-0.1325657	-0.0142893
0.0056435	-0.0085565	* 0.68 *	-0.1376632	-0.0146262
0.0058509	-0.0089053	* 0.67 *	-0.1428441	-0.0149655
0.0060781	-0.0092605	* 0.66 *	-0.1481054	-0.0153081
0.0063307	-0.0096112	* 0.65 *	-0.1534413	-0.0156500
0.0066081	-0.0099394	* 0.64 *	-0.1588434	-0.0159783
0.0068983	-0.0102224	* 0.63 *	-0.1643075	-0.0162674
0.0071710	-0.0104395	* 0.62 *	-0.1698410	-0.0164785
0.0073752	-0.0105827	* 0.61 *	-0.1754742	-0.0165635
0.0074421	-0.0106726	* 0.60 *	-0.1812707	-0.0164758
0.0072978	-0.0107753	* 0.59 *	-0.1873330	-0.0161909
0.0068888	-0.0110142	* 0.58 *	-0.1937975	-0.0157323
0.0062183	-0.0115705	* 0.57 *	-0.2008142	-0.0152008
0.0053889	-0.0126625	* 0.56 *	-0.2085060	-0.0147953
0.0046405	-0.0144988	* 0.55 *	-0.2169099	-0.0148163
0.0043694	-0.0172037	* 0.54 *	-0.2259089	-0.0156375
0.0051093	-0.0207226	* 0.53 *	-0.2351677	-0.0176373
0.0074626	-0.0247249	* 0.52 *	-0.2440974	-0.0210894
0.0119728	-0.0285301	* 0.51 *	-0.2518699	-0.0260214

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 17			PHI 18	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0189473	-0.0313892 *	0.5. *	-0.2575045	-0.0320665
0.0282523	-0.0310507 *	0.49 *	-0.2600353	-0.0383413
0.0391217	-0.0269310 *	0.48 *	-0.2587520	-0.0433945
0.0506031	-0.0173888 *	0.47 *	-0.2534836	-0.0452635
0.0586841	-0.0015774 *	0.46 *	-0.2448758	-0.0416672
0.0621732	0.0204765 *	0.45 *	-0.2345979	-0.0303364
0.0572985	0.0475416 *	0.44 *	-0.2254108	-0.0094537
0.0417627	0.0769821 *	0.43 *	-0.2210452	0.0218566
0.0112636	0.1047622 *	0.42 *	-0.2258618	0.0630758
-0.0328977	0.1257071 *	0.41 *	-0.2443083	0.1119720
-0.0903085	0.1340254 *	0.40 *	-0.2802321	0.1645046
-0.1576478	0.1246479 *	0.39 *	-0.3361470	0.2150147
-0.2293943	0.0910936 *	0.38 *	-0.4125769	0.2567174
-0.2981845	0.0323258 *	0.37 *	-0.5076026	0.2824578
-0.3555128	-0.0525443 *	0.36 *	-0.6167186	0.2856368
-0.3926946	-0.1608447 *	0.35 *	-0.7330590	0.2611763
-0.4019609	-0.2869174 *	0.34 *	-0.8479939	0.2063678
-0.3775626	-0.4225188 *	0.33 *	-0.9526342	0.1214598
-0.3165894	-0.5576138 *	0.32 *	-1.0359221	0.0098783
-0.2195679	-0.6814636 *	0.31 *	-1.0917559	-0.1219789
-0.0905371	-0.7838576 *	0.30 *	-1.1139736	-0.2653533
0.0633011	-0.8563102 *	0.29 *	-1.1000538	-0.4100651
0.2323498	-0.8930482 *	0.28 *	-1.0508327	-0.5456465
0.4056879	-0.8916526 *	0.27 *	-0.9703824	-0.6625063
0.5722873	-0.8532673 *	0.26 *	-0.8654920	-0.7529626
0.7222046	-0.7823601 *	0.25 *	-0.7448254	-0.8120058
0.8475867	-0.6868878 *	0.24 *	-0.6178887	-0.8376986
0.9433641	-0.5733722 *	0.23 *	-0.4939591	-0.8311825
1.0075636	-0.4538278 *	0.22 *	-0.3811183	-0.7963158
1.0412264	-0.3366944 *	0.21 *	-0.2855123	-0.7390206
1.0479822	-0.2299125 *	0.20 *	-0.2109109	-0.6664510
1.0333624	-0.1394452 *	0.19 *	-0.1585944	-0.5861072
1.0039816	-0.0689057 *	0.18 *	-0.1275458	-0.5050148
0.9666898	-0.0195015 *	0.17 *	-0.1148857	-0.4290641
0.9278265	0.0097392 *	0.16 *	-0.1164637	-0.3625763
0.8926381	0.0215252 *	0.15 *	-0.1275092	-0.3080786
0.8649172	0.0197299 *	0.14 *	-0.1432514	-0.2663981
0.8468696	0.0087790 *	0.13 *	-0.1594366	-0.2368256
0.8391877	-0.0069235 *	0.12 *	-0.1726940	-0.2174985
0.8412845	-0.0234674 *	0.11 *	-0.1807303	-0.2058120
0.8516285	-0.0377712 *	0.10 *	-0.1823602	-0.1988358
0.8681193	-0.0477639 *	0.09 *	-0.1773966	-0.1936874
0.8884461	-0.0524232 *	0.08 *	-0.1664417	-0.1878216
0.9113883	-0.0516929 *	0.07 *	-0.1506217	-0.1792260
0.9329291	-0.0463121 *	0.06 *	-0.1313114	-0.1665208
0.9518754	-0.0375901 *	0.05 *	-0.1098828	-0.1489748
0.9688860	-0.0271624 *	0.04 *	-0.0875085	-0.1264607
0.9824284	-0.0167519 *	0.03 *	-0.0650347	-0.0993677
0.9921865	-0.0079579 *	0.02 *	-0.0429297	-0.0684953
0.9980482	-0.0020819 *	0.01 *	-0.0213056	-0.0349423
1.0000000	0.0 *	0.0 *	0.0	0.0

EIGENVALUES, β_{NM}, FOR ALPHA=1.0, REYNOLDS NUM=6667

N= 2

M	REAL	IMAGINARY	M	REAL	IMAGINARY
1	-.2928736E 01	-.7242429E-01	61	-.2023611E 01	-.1221325E 01
2	-.2925335E 01	-.7419586E-01	62	-.2024025E 01	-.1264285E 01
3	-.2864455E 01	-.1330389E 00	63	-.2022025E 01	-.1307144E 01
4	-.2865750E 01	-.1330430E 00	64	-.2021241E 01	-.1351228E 01
5	-.6794990E 00	-.1427048E 00	65	-.2021080E 01	-.1396448E 01
6	-.6724864E 00	-.1531927E 00	66	-.2020288E 01	-.1438396E 01
7	-.2808818E 01	-.1898703E 00	67	-.2019796E 01	-.1483067E 01
8	-.2806743E 01	-.1920571E 00	68	-.2019541E 01	-.1527702E 01
9	-.2745575E 01	-.2503206E 00	69	-.2018736E 01	-.1572472E 01
10	-.2747790E 01	-.2509896E 00	70	-.2018279E 01	-.1617641E 01
11	-.2690388E 01	-.3068454E 00	71	-.2018105E 01	-.1662904E 01
12	-.2689377E 01	-.3100755E 00	72	-.2017741E 01	-.1708554E 01
13	-.1033169E 01	-.3536755E 00	73	-.2017234E 01	-.1754663E 01
14	-.2627490E 01	-.3674288E 00	74	-.2016996E 01	-.1800719E 01
15	-.2631036E 01	-.3690762E 00	75	-.2016676E 01	-.1846859E 01
16	-.1022112E 01	-.3747532E 00	76	-.2016414E 01	-.1893509E 01
17	-.2572692E 01	-.4236408E 00	77	-.2016188E 01	-.1940444E 01
18	-.2573215E 01	-.4282323E 00	78	-.2016011E 01	-.1987331E 01
19	-.5063065E 00	-.4795700E 00	79	-.2015708E 01	-.2034429E 01
20	-.5134557E 00	-.4811708E 00	80	-.2015571E 01	-.2081874E 01
21	-.2509982E 01	-.4844736E 00	81	-.2015432E 01	-.2129475E 01
22	-.2515481E 01	-.4873029E 00	82	-.2015301E 01	-.2177114E 01
23	-.1321588E 01	-.5104209E 00	83	-.2015099E 01	-.2224991E 01
24	-.2455505E 01	-.5403551E 00	84	-.2015057E 01	-.2273062E 01
25	-.1308166E 01	-.5454795E 00	85	-.2014959E 01	-.2321239E 01
26	-.2458251E 01	-.5465346E 00	86	-.2014885E 01	-.2369510E 01
27	-.2392827E 01	-.6016045E 00	87	-.2014785E 01	-.2417987E 01
28	-.2401120E 01	-.6056819E 00	88	-.2014801E 01	-.2466539E 01
29	-.1575447E 01	-.6292596E 00	89	-.2014729E 01	-.2515180E 01
30	-.9067714E 00	-.6492369E 00	90	-.2014723E 01	-.2563923E 01
31	-.9158541E 00	-.6544301E 00	91	-.2014720E 01	-.2612814E 01
32	-.2338561E 01	-.6571197E 00	92	-.2014773E 01	-.2661712E 01
33	-.2344479E 01	-.6649974E 00	93	-.2014728E 01	-.2710705E 01
34	-.1560723E 01	-.6856441E 00	94	-.2014800E 01	-.2759756E 01
35	-.1790989E 01	-.7040872E 00	95	-.2014866E 01	-.2808868E 01
36	-.2275699E 01	-.7191277E 00	96	-.2014936E 01	-.2857985E 01
37	-.2287949E 01	-.7242278E 00	97	-.2014952E 01	-.2907197E 01
38	-.2221351E 01	-.7742811E 00	98	-.2015098E 01	-.2956358E 01
39	-.1230984E 01	-.7827831E 00	99	-.2015185E 01	-.3005542E 01
40	-.2231925E 01	-.7836182E 00	100	-.2015308E 01	-.3054756E 01
41	-.1240025E 01	-.7917392E 00	101	-.2015413E 01	-.3103999E 01
42	-.1938621E 01	-.7928584E 00	102	-.2015572E 01	-.3153112E 01
43	-.1791364E 01	-.8031580E 00	103	-.2015679E 01	-.3202251E 01
44	-.2157404E 01	-.8371686E 00	104	-.2015898E 01	-.3251360E 01
45	-.2176301E 01	-.8430793E 00	105	-.2016069E 01	-.3300447E 01
46	-.2104287E 01	-.8843399E 00	106	-.2016251E 01	-.3349425E 01
47	-.1514080E 01	-.8941566E 00	107	-.2016410E 01	-.3398361E 01
48	-.2006253E 01	-.9021817E 00	108	-.2016666E 01	-.3447165E 01
49	-.2122709E 01	-.9045703E 00	109	-.2016896E 01	-.3495962E 01
50	-.1521761E 01	-.9063955E 00	110	-.2017173E 01	-.3544634E 01
51	-.2074397E 01	-.9396663E 00	111	-.2017374E 01	-.3593193E 01
52	-.2075563E 01	-.9802775E 00	112	-.2017645E 01	-.3641595E 01
53	-.1770315E 01	-.9892378E 00	113	-.2017956E 01	-.3689939E 01
54	-.1775794E 01	-.1004061E 01	114	-.2018311E 01	-.3738107E 01
55	-.2046509E 01	-.1022859E 01	115	-.2018580E 01	-.3786172E 01
56	-.2027673E 01	-.1056645E 01	116	-.2018907E 01	-.3834015E 01
57	-.2001152E 01	-.1068413E 01	117	-.2019221E 01	-.3881749E 01
58	-.2010852E 01	-.1100253E 01	118	-.2019684E 01	-.3929301E 01
59	-.2023335E 01	-.1134121E 01	119	-.2020154E 01	-.3976630E 01
60	-.2022022E 01	-.1175170E 01	120	-.2020452E 01	-.4023803E 01

EIGENVALUES, β_{NM}, FOR ALPHA=1.0, REYNOLDS NUM=6667

N= 2
CONTINUED

M	REAL	IMAGINARY
0121	-.2020739E 01	-.4071030E 01
0122	-.2021385E 01	-.4117632E 01
0123	-.2021869E 01	-.4163773E 01
0124	-.2022330E 01	-.4210453E 01
0125	-.2023126E 01	-.4257185E 01
0126	-.2023410E 01	-.4302547E 01
0127	-.2023259E 01	-.4347665E 01
0128	-.2024645E 01	-.4393361E 01
0129	-.2026339E 01	-.4438666E 01
0130	-.2025963E 01	-.4483652E 01
0131	-.2025466E 01	-.4528572E 01
0132	-.2027183E 01	-.4572204E 01
0133	-.2029078E 01	-.4615610E 01
0134	-.2029261E 01	-.4659808E 01
0135	-.2028623E 01	-.4703983E 01
0136	-.2030768E 01	-.4747775E 01
0137	-.2034636E 01	-.4788918E 01
0138	-.2031360E 01	-.4829449E 01
0139	-.2026399E 01	-.4876979E 01
0140	-.2039819E 01	-.4919850E 01
0141	-.2044727E 01	-.4946592E 01
0142	-.2037115E 01	-.4991229E 01
0143	-.1979667E 01	-.5016839E 01
0144	-.1972775E 01	-.5020457E 01
0145	-.2067489E 01	-.5030343E 01
0146	-.2095361E 01	-.5055041E 01
0147	-.1862638E 01	-.5063878E 01
0148	-.1862656E 01	-.5064206E 01
0149	-.2120543E 01	-.5084233E 01
0150	-.1744513E 01	-.5114732E 01

M	REAL	IMAGINARY
*0151	-.1744485E 01	-.5114736E 01
*0152	-.2147603E 01	-.5114944E 01
*0153	-.2175742E 01	-.5145064E 01
*0154	-.1621070E 01	-.5169796E 01
*0155	-.1621111E 01	-.5169802E 01
*0156	-.2203771E 01	-.5175075E 01
*0157	-.2231653E 01	-.5205129E 01
*0158	-.1491444E 01	-.5229972E 01
*0159	-.1491487E 01	-.5229977E 01
*0160	-.2259611E 01	-.5235186E 01
*0161	-.2287697E 01	-.5265235E 01
*0162	-.2315866E 01	-.5295277E 01
*0163	-.1354234E 01	-.5296075E 01
*0164	-.1354280E 01	-.5296081E 01
*0165	-.2344105E 01	-.5325318E 01
*0166	-.2372418E 01	-.5355354E 01
*0167	-.1207538E 01	-.5369263E 01
*0168	-.1207588E 01	-.5369268E 01
*0169	-.2400814E 01	-.5385389E 01
*0170	-.2429286E 01	-.5415418E 01
*0171	-.2457837E 01	-.5445446E 01
*0172	-.1048512E 01	-.5451275E 01
*0173	-.1048567E 01	-.5451281E 01
*0174	-.2486464E 01	-.5475470E 01
*0175	-.2515169E 01	-.5505491E 01
*0176	-.2543951E 01	-.5535509E 01
*0177	-.8724819E 00	-.5544986E 01
*0178	-.8725418E 00	-.5544992E 01
*0179	-.2572812E 01	-.5565527E 01
*0180	-.2601747E 01	-.5595540E 01
*0181	-.2630762E 01	-.5625553E 01
*0182	-.2659850E 01	-.5655562E 01
*0183	-.6704821E 00	-.5655911E 01
*0184	-.6705489E 00	-.5655921E 01
*0185	-.2689019E 01	-.5685572E 01
*0186	-.2718261E 01	-.5715578E 01
*0187	-.2747582E 01	-.5745584E 01
*0188	-.2776976E 01	-.5775588E 01
*0189	-.4193417E 00	-.5798278E 01
*0190	-.4194181E 00	-.5798292E 01
*0191	-.2806451E 01	-.5805591E 01
*0192	-.2835996E 01	-.5835593E 01
*0193	-.2865623E 01	-.5865595E 01
*0194	-.2895318E 01	-.5895596E 01
*0195	-.2925097E 01	-.5925595E 01
*0196	-.2954943E 01	-.5955596E 01
*0197	-.2984878E 01	-.5985593E 01
*0198	-.5277100E-01	-.7534071E 01
*0199	-.5161710E-01	-.7538004E 01

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

PHI 21 REAL	PHI 21 IMAGINARY	Y	PHI 22 REAL	PHI 22 IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
0.0000723	-0.0000075	* 0.99 *	-0.0003642	0.0013144
0.0001890	-0.0000688	* 0.98 *	-0.0000916	0.0037736
0.0003095	-0.0001548	* 0.97 *	0.0006493	0.0063132
0.0004040	-0.0002452	* 0.96 *	0.0015211	0.0087412
0.0005046	-0.0003343	* 0.95 *	0.0023914	0.0111100
0.0006052	-0.0004224	* 0.94 *	0.0032441	0.0134709
0.0007064	-0.0005104	* 0.93 *	0.0040899	0.0158423
0.0008083	-0.0005987	* 0.92 *	0.0049368	0.0182269
0.0009107	-0.0006874	* 0.91 *	0.0057875	0.0206244
0.0010137	-0.0007766	* 0.90 *	0.0066426	0.0230354
0.0011173	-0.0008664	* 0.89 *	0.0075025	0.0254614
0.0012217	-0.0009567	* 0.88 *	0.0083676	0.0279040
0.0013268	-0.0010477	* 0.87 *	0.0092385	0.0303651
0.0014329	-0.0011393	* 0.86 *	0.0101159	0.0328465
0.0015399	-0.0012318	* 0.85 *	0.0110005	0.0353502
0.0016480	-0.0013251	* 0.84 *	0.0118931	0.0378780
0.0017572	-0.0014194	* 0.83 *	0.0127944	0.0404319
0.0018675	-0.0015147	* 0.82 *	0.0137051	0.0430139
0.0019792	-0.0016111	* 0.81 *	0.0146261	0.0456263
0.0020923	-0.0017086	* 0.80 *	0.0155581	0.0482711
0.0022069	-0.0018075	* 0.79 *	0.0165022	0.0509507
0.0023231	-0.0019076	* 0.78 *	0.0174590	0.0536674
0.0024410	-0.0020093	* 0.77 *	0.0184297	0.0564237
0.0025606	-0.0021124	* 0.76 *	0.0194152	0.0592220
0.0026822	-0.0022173	* 0.75 *	0.0204164	0.0620650
0.0028058	-0.0023238	* 0.74 *	0.0214346	0.0649556
0.0029316	-0.0024323	* 0.73 *	0.0224707	0.0678964
0.0030596	-0.0025427	* 0.72 *	0.0235261	0.0708905
0.0031900	-0.0026553	* 0.71 *	0.0246020	0.0739413
0.0033230	-0.0027700	* 0.70 *	0.0256996	0.0770517
0.0034587	-0.0028872	* 0.69 *	0.0268205	0.0802253
0.0035971	-0.0030068	* 0.68 *	0.0279660	0.0834657
0.0037386	-0.0031292	* 0.67 *	0.0291378	0.0867768
0.0038832	-0.0032543	* 0.66 *	0.0303374	0.0901624
0.0040312	-0.0033825	* 0.65 *	0.0315668	0.0936268
0.0041827	-0.0035138	* 0.64 *	0.0328278	0.0971743
0.0043378	-0.0036485	* 0.63 *	0.0341225	0.1008099
0.0044969	-0.0037867	* 0.62 *	0.0354529	0.1045383
0.0046601	-0.0039288	* 0.61 *	0.0368214	0.1083648
0.0048277	-0.0040748	* 0.60 *	0.0382306	0.1122950
0.0049998	-0.0042251	* 0.59 *	0.0396832	0.1163348
0.0051768	-0.0043799	* 0.58 *	0.0411820	0.1204904
0.0053589	-0.0045396	* 0.57 *	0.0427303	0.1247687
0.0055464	-0.0047044	* 0.56 *	0.0443314	0.1291767
0.0057396	-0.0048748	* 0.55 *	0.0459890	0.1337222
0.0059389	-0.0050510	* 0.54 *	0.0477070	0.1384132
0.0061447	-0.0052334	* 0.53 *	0.0494896	0.1432585
0.0063576	-0.0054224	* 0.52 *	0.0513416	0.1482671
0.0065781	-0.0056181	* 0.51 *	0.0532681	0.1534486

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 21			PHI 22	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0068963	-0.0058206 *	0.50 *	0.0552753	0.1588129
0.0070424	-0.0060299 *	0.49 *	0.0573708	0.1643707
0.0072856	-0.0062461 *	0.48 *	0.0595640	0.1701341
0.0075349	-0.0064703 *	0.47 *	0.0618662	0.1761177
0.0077884	-0.0067048 *	0.46 *	0.0642899	0.1823398
0.0080451	-0.0069539 *	0.45 *	0.0668477	0.1888239
0.0083054	-0.0072248 *	0.44 *	0.0695494	0.1955988
0.0085748	-0.0075266 *	0.43 *	0.0723979	0.2026982
0.0088617	-0.0078688 *	0.42 *	0.0753854	0.2101557
0.0091880	-0.0082575 *	0.41 *	0.0784914	0.2179978
0.0095803	-0.0086894 *	0.40 *	0.0816840	0.2262335
0.0100717	-0.0091454 *	0.39 *	0.0849280	0.2348405
0.0106926	-0.0095829 *	0.38 *	0.0882023	0.2437559
0.0114584	-0.0099323 *	0.37 *	0.0915248	0.2528714
0.0123517	-0.0100989 *	0.36 *	0.0949861	0.2620413
0.0133028	-0.0099733 *	0.35 *	0.0987835	0.2711087
0.0141731	-0.0094542 *	0.34 *	0.1032479	0.2799515
0.0147453	-0.0084814 *	0.33 *	0.1088530	0.2885461
0.0147289	-0.0070778 *	0.32 *	0.1161968	0.2970456
0.0137842	-0.0053943 *	0.31 *	0.1259451	0.3058538
0.0115687	-0.0037478 *	0.30 *	0.1387388	0.3156849
0.0078032	-0.0026439 *	0.29 *	0.1550668	0.3275853
0.0023527	-0.0027730 *	0.28 *	0.1751221	0.3429046
-0.0046903	-0.0049738 *	0.27 *	0.1986611	0.3632042
-0.0129321	-0.0081622 *	0.26 *	0.2248930	0.3901055
-0.0216310	-0.0192275 *	0.25 *	0.2524249	0.4250870
-0.0296881	-0.0329099 *	0.24 *	0.2792844	0.4692551
-0.0356859	-0.0516718 *	0.23 *	0.3030283	0.5231183
-0.0379755	-0.0755827 *	0.22 *	0.3209367	0.5863999
-0.0348067	-0.1042373 *	0.21 *	0.3302724	0.6579199
-0.0244868	-0.1367218 *	0.20 *	0.3285801	0.7355716
-0.0055509	-0.1716371 *	0.19 *	0.3139853	0.8164015
0.0230786	-0.2071808 *	0.18 *	0.2854552	0.8967913
0.0619642	-0.2412826 *	0.17 *	0.2429844	0.9727182
0.1110727	-0.2717768 *	0.16 *	0.1876830	1.0400696
0.1697519	-0.2965932 *	0.15 *	0.1217518	1.0949678
0.2367675	-0.3139459 *	0.14 *	0.0483459	1.1340723
0.3103925	-0.3224978 *	0.13 *	-0.0286522	1.1548195
0.3885397	-0.3214841 *	0.12 *	-0.1049297	1.1555786
0.4689167	-0.3107852 *	0.11 *	-0.1760747	1.1357164
0.5491878	-0.2909417 *	0.10 *	-0.2379068	1.0955572
0.6271230	-0.2631150 *	0.09 *	-0.2867784	1.0362682
0.7007203	-0.2290007 *	0.08 *	-0.3198222	0.9596727
0.7682903	-0.1907049 *	0.07 *	-0.3351272	0.8680379
0.8285004	-0.1505982 *	0.06 *	-0.3318381	0.7638482
0.8803765	-0.1111588 *	0.05 *	-0.3101798	0.6496014
0.9232719	-0.0748188 *	0.04 *	-0.2714134	0.5276450
0.9568084	-0.0438199 *	0.03 *	-0.2177353	0.4000668
0.9808051	-0.0200902 *	0.02 *	-0.1521338	0.2686473
0.9952030	-0.0051430 *	0.01 *	-0.0782135	0.1348728
1.0000000	0.0 *	0.0 *	0.0	0.0

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

PHI 23			PHI 24	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0 *	1.00 *	0.0	0.0
0.0001614	-0.0000757 *	0.99 *	-0.0001014	0.0014706
0.0003830	-0.0003148 *	0.98 *	0.0007375	0.0040325
0.0005711	-0.0006091 *	0.97 *	0.0021085	0.0065741
0.0007358	-0.0009068 *	0.96 *	0.0035986	0.0089593
0.0008942	-0.0011987 *	0.95 *	0.0050721	0.0112772
0.0010535	-0.0014883 *	0.94 *	0.0065228	0.0135900
0.0012145	-0.0017774 *	0.93 *	0.0079678	0.0159160
0.0013768	-0.0020681 *	0.92 *	0.0094169	0.0182564
0.0015401	-0.0023604 *	0.91 *	0.0108733	0.0206100
0.0017043	-0.0026543 *	0.90 *	0.0123379	0.0229769
0.0018695	-0.0029500 *	0.89 *	0.0138112	0.0253587
0.0020359	-0.0032477 *	0.88 *	0.0152942	0.0277570
0.0022037	-0.0035476 *	0.87 *	0.0167879	0.0301736
0.0023728	-0.0038499 *	0.86 *	0.0182935	0.0326105
0.0025436	-0.0041549 *	0.85 *	0.0198123	0.0350694
0.0027160	-0.0044629 *	0.84 *	0.0213456	0.0375522
0.0028902	-0.0047741 *	0.83 *	0.0228946	0.0400609
0.0030663	-0.0050887 *	0.82 *	0.0244608	0.0425975
0.0032446	-0.0054070 *	0.81 *	0.0260454	0.0451640
0.0034252	-0.0057294 *	0.80 *	0.0276501	0.0477627
0.0036078	-0.0060560 *	0.79 *	0.0292764	0.0503957
0.0037932	-0.0063872 *	0.78 *	0.0309257	0.0530653
0.0039812	-0.0067234 *	0.77 *	0.0325999	0.0557739
0.0041720	-0.0070648 *	0.76 *	0.0343006	0.0585240
0.0043658	-0.0074118 *	0.75 *	0.0360297	0.0613182
0.0045628	-0.0077647 *	0.74 *	0.0377892	0.0641592
0.0047631	-0.0081240 *	0.73 *	0.0395809	0.0670497
0.0049670	-0.0084900 *	0.72 *	0.0414072	0.0699928
0.0051746	-0.0088632 *	0.71 *	0.0432702	0.0729914
0.0053861	-0.0092439 *	0.70 *	0.0451723	0.0760487
0.0056017	-0.0096327 *	0.69 *	0.0471161	0.0791681
0.0058216	-0.0100301 *	0.68 *	0.0491042	0.0823532
0.0060461	-0.0104365 *	0.67 *	0.0511395	0.0856075
0.0062753	-0.0108525 *	0.66 *	0.0532250	0.0889349
0.0065096	-0.0112788 *	0.65 *	0.0553640	0.0923395
0.0067492	-0.0117158 *	0.64 *	0.0575599	0.0958256
0.0069943	-0.0121643 *	0.63 *	0.0598164	0.0993976
0.0072453	-0.0126249 *	0.62 *	0.0621375	0.1030602
0.0075022	-0.0130984 *	0.61 *	0.0645275	0.1068186
0.0077653	-0.0135855 *	0.60 *	0.0669912	0.1106780
0.0080349	-0.0140874 *	0.59 *	0.0695336	0.1146440
0.0083112	-0.0146051 *	0.58 *	0.0721602	0.1187230
0.0085948	-0.0151401 *	0.57 *	0.0748768	0.1229216
0.0088867	-0.0156938 *	0.56 *	0.0776890	0.1272472
0.0091885	-0.0162671 *	0.55 *	0.0806023	0.1317066
0.0095023	-0.0168600 *	0.54 *	0.0836224	0.1363065
0.0098295	-0.0174708 *	0.53 *	0.0867559	0.1410519
0.0101694	-0.0180958 *	0.52 *	0.0900120	0.1459458
0.0105173	-0.0187304 *	0.51 *	0.0934051	0.1509899

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 23			PHI 24	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0108610	-0.0193724 *	0.50 *	0.0969576	0.1561878
0.0111828	-0.0200270 *	0.49 *	0.1007014	0.1615494
0.0114678	-0.0207143 *	0.48 *	0.1046761	0.1671004
0.0116790	-0.0214755 *	0.47 *	0.1089202	0.1728891
0.0118433	-0.0223745 *	0.46 *	0.1134558	0.1789916
0.0120014	-0.0234891 *	0.45 *	0.1182659	0.1855065
0.0122618	-0.0248871 *	0.44 *	0.1232716	0.1925334
0.0128014	-0.0265868 *	0.43 *	0.1283169	0.2001328
0.0138494	-0.0285039 *	0.42 *	0.1331761	0.2082699
0.0156382	-0.0304007 *	0.41 *	0.1375964	0.2167513
0.0183156	-0.0318547 *	0.40 *	0.1413825	0.2251781
0.0218279	-0.0322728 *	0.39 *	0.1445217	0.2329388
0.0257952	-0.0309714 *	0.38 *	0.1473272	0.2392697
0.0294151	-0.0273325 *	0.37 *	0.1505669	0.2433990
0.0314377	-0.0210257 *	0.36 *	0.1555293	0.2447729
0.0302523	-0.0122633 *	0.35 *	0.1639799	0.2433344
0.0241070	-0.0020394 *	0.34 *	0.1779752	0.2398016
0.0114536	0.0077774 *	0.33 *	0.1995276	0.2358718
-0.0086241	0.0143740 *	0.32 *	0.2301578	0.2342750
-0.0359766	0.0143048 *	0.31 *	0.2704028	0.2386191
-0.0690464	0.0038726 *	0.30 *	0.3193821	0.2530044
-0.1047127	-0.0202746 *	0.29 *	0.3745308	0.2814343
-0.1383981	-0.0604860 *	0.28 *	0.4315926	0.3271060
-0.1644613	-0.1175002 *	0.27 *	0.4849209	0.3917601
-0.1768454	-0.1906158 *	0.26 *	0.5280782	0.4748099
-0.1698916	-0.2745450 *	0.25 *	0.5546615	0.5736378
-0.1391881	-0.3656101 *	0.24 *	0.5592235	0.6830429
-0.0823033	-0.4562756 *	0.23 *	0.5381341	0.7959633
0.0007278	-0.5389470 *	0.22 *	0.4902273	0.9041638
0.1072612	-0.6063111 *	0.21 *	0.4171142	0.9991962
0.2322718	-0.6522682 *	0.20 *	0.3230987	1.0734196
0.3689178	-0.6727044 *	0.19 *	0.2147090	1.1209183
0.5093498	-0.6659846 *	0.18 *	0.0999196	1.1381731
0.6456277	-0.6330976 *	0.17 *	-0.0128077	1.1243877
0.7706036	-0.5774482 *	0.16 *	-0.1155112	1.0814438
0.8786421	-0.5043461 *	0.15 *	-0.2015998	1.0135145
0.9660853	-0.4202880 *	0.14 *	-0.2664876	0.9264147
1.0314207	-0.3321525 *	0.13 *	-0.3079249	0.8268130
1.0751619	-0.2464275 *	0.12 *	-0.3260098	0.7214321
1.0994968	-0.1685680 *	0.11 *	-0.3229131	0.6163473
1.1077785	-0.1025556 *	0.10 *	-0.3023900	0.5164701
1.1039629	-0.0506850 *	0.09 *	-0.2691684	0.4252588
1.0926773	-0.0135724 *	0.08 *	-0.2283083	0.3446582
1.0757809	0.0096511 *	0.07 *	-0.1846155	0.2752355
1.0589788	0.0210139 *	0.06 *	-0.1421677	0.2164544
1.0411854	0.0233045 *	0.05 *	-0.1039911	0.1670206
1.0265360	0.0196545 *	0.04 *	-0.0718918	0.1252289
1.0149031	0.0131460 *	0.03 *	-0.0464392	0.0892609
1.0065928	0.0064750 *	0.02 *	-0.0270723	0.0573894
1.0016413	0.0016884 *	0.01 *	-0.0123051	0.0280819
1.0000000	0.0 *	0.0 *	0.0	0.0

EIGENFUNCTIONS, PHI_{NM}, FOR ALPHA=1.0, REY NUM=6667

PHI_{25} REAL	PHI_{25} IMAGINARY		Y		PHI_{26} REAL	PHI_{26} IMAGINARY
0.0	0.0	*	1.00	*	0.0	0.0
0.0233868	0.0099088	*	0.99	*	0.0013982	0.0209787
0.0860379	0.0197316	*	0.98	*	0.0177340	0.0710952
0.1730273	0.0158325	*	0.97	*	0.0538140	0.1342699
0.2722762	-0.0050790	*	0.96	*	0.1076637	0.2003813
0.3762600	-0.0406757	*	0.95	*	0.1746120	0.2648533
0.4813654	-0.0859840	*	0.94	*	0.2492466	0.3270470
0.5863721	-0.1350155	*	0.93	*	0.3260932	0.3884251
0.6908654	-0.1816907	*	0.92	*	0.3997986	0.4509012
0.7940065	-0.2205288	*	0.91	*	0.4653282	0.5155806
0.8938847	-0.2473087	*	0.90	*	0.5183873	0.5820275
0.9875125	-0.2596641	*	0.89	*	0.5560068	0.6481386
1.0713663	-0.2574385	*	0.88	*	0.5770745	0.7105921
1.1422329	-0.2426344	*	0.87	*	0.5825651	0.7656953
1.1980391	-0.2189029	*	0.86	*	0.5753171	0.8103436
1.2383757	-0.1906884	*	0.85	*	0.5593824	0.8427814
1.2645645	-0.1622645	*	0.84	*	0.5391320	0.8629394
1.2792587	-0.1369333	*	0.83	*	0.5183885	0.8722874
1.2857695	-0.1165876	*	0.82	*	0.4998240	0.8733096
1.2873383	-0.1016955	*	0.81	*	0.4847521	0.8688191
1.2865820	-0.0916260	*	0.80	*	0.4732890	0.8613421
1.2852221	-0.0851452	*	0.79	*	0.4647543	0.8527310
1.2841015	-0.0809002	*	0.78	*	0.4581329	0.8440548
1.2833958	-0.0777625	*	0.77	*	0.4524525	0.8357137
1.2829046	-0.0749829	*	0.76	*	0.4470010	0.8276711
1.2823038	-0.0721869	*	0.75	*	0.4413825	0.8196958
1.2813206	-0.0692741	*	0.74	*	0.4354629	0.8115417
1.2797956	-0.0662922	*	0.73	*	0.4292682	0.8030416
1.2776880	-0.0633346	*	0.72	*	0.4228884	0.7941269
1.2750330	-0.0604799	*	0.71	*	0.4164137	0.7848058
1.2719011	-0.0577704	*	0.70	*	0.4099055	0.7751264
1.2683678	-0.0552157	*	0.69	*	0.4033946	0.7651474
1.2644968	-0.0528055	*	0.68	*	0.3968900	0.7549208
1.2603397	-0.0505226	*	0.67	*	0.3903908	0.7444862
1.2559214	-0.0483505	*	0.66	*	0.3838938	0.7338726
1.2512827	-0.0462767	*	0.65	*	0.3773979	0.7231015
1.2464447	-0.0442920	*	0.64	*	0.3709034	0.7121910
1.2414303	-0.0423903	*	0.63	*	0.3644128	0.7011574
1.2362623	-0.0405664	*	0.62	*	0.3579291	0.6900153
1.2309599	-0.0388160	*	0.61	*	0.3514551	0.6787789
1.2255430	-0.0371351	*	0.60	*	0.3449934	0.6674614
1.2200308	-0.0355200	*	0.59	*	0.3385462	0.6560743
1.2144394	-0.0339670	*	0.58	*	0.3321155	0.6446283
1.2087803	-0.0324730	*	0.57	*	0.3257030	0.6331336
1.2030725	-0.0310350	*	0.56	*	0.3193102	0.6215985
1.1973267	-0.0296504	*	0.55	*	0.3129387	0.6100312
1.1915560	-0.0283166	*	0.54	*	0.3065898	0.5984392
1.1857710	-0.0270315	*	0.53	*	0.3002647	0.5868286
1.1799822	-0.0257928	*	0.52	*	0.2939643	0.5752059
1.1742001	-0.0245988	*	0.51	*	0.2876894	0.5635760

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 25			PHI 26	
REAL	IMAGINARY	Y	REAL	IMAGINARY
1.1684332	-0.0234475	0.50	0.2814409	0.5519444
1.1626902	-0.0223373	0.49	0.2752194	0.5403152
1.1569796	-0.0212666	0.48	0.2690257	0.5286924
1.1513071	-0.0202339	0.47	0.2628599	0.5170797
1.1456823	-0.0192380	0.46	0.2567227	0.5054803
1.1401100	-0.0182775	0.45	0.2506143	0.4938974
1.1345959	-0.0173512	0.44	0.2445347	0.4823332
1.1291475	-0.0164580	0.43	0.2384841	0.4707901
1.1237688	-0.0155968	0.42	0.2324628	0.4592705
1.1184654	-0.0147665	0.41	0.2264705	0.4477757
1.1132412	-0.0139664	0.40	0.2205071	0.4363074
1.1081018	-0.0131954	0.39	0.2145728	0.4248670
1.1030512	-0.0124527	0.38	0.2086670	0.4134555
1.0980921	-0.0117375	0.37	0.2027897	0.4020742
1.0932293	-0.0110491	0.36	0.1969405	0.3907235
1.0884657	-0.0103868	0.35	0.1911192	0.3794041
1.0838041	-0.0097498	0.34	0.1853251	0.3681164
1.0792494	-0.0091375	0.33	0.1795582	0.3568608
1.0748024	-0.0085493	0.32	0.1738177	0.3456374
1.0704660	-0.0079847	0.31	0.1681032	0.3344464
1.0662432	-0.0074431	0.30	0.1624142	0.3232875
1.0621367	-0.0069239	0.29	0.1567501	0.3121608
1.0581484	-0.0064267	0.28	0.1511103	0.3010657
1.0542793	-0.0059510	0.27	0.1454942	0.2900020
1.0505333	-0.0054964	0.26	0.1399010	0.2789693
1.0469103	-0.0050624	0.25	0.1343303	0.2679669
1.0434132	-0.0046487	0.24	0.1287812	0.2569942
1.0400429	-0.0042549	0.23	0.1232530	0.2460508
1.0368013	-0.0038805	0.22	0.1177450	0.2351355
1.0336895	-0.0035254	0.21	0.1122565	0.2242476
1.0307093	-0.0031891	0.20	0.1067865	0.2133864
1.0278616	-0.0028715	0.19	0.1013346	0.2025506
1.0251465	-0.0025721	0.18	0.0958996	0.1917397
1.0225668	-0.0022907	0.17	0.0904807	0.1809523
1.0201216	-0.0020271	0.16	0.0850775	0.1701874
1.0178137	-0.0017811	0.15	0.0796887	0.1594438
1.0156422	-0.0015525	0.14	0.0743135	0.1487204
1.0136089	-0.0013410	0.13	0.0689512	0.1380160
1.0117142	-0.0011465	0.12	0.0636009	0.1273296
1.0099583	-0.0009687	0.11	0.0582616	0.1166595
1.0083427	-0.0008076	0.10	0.0529324	0.1060047
1.0068665	-0.0006630	0.09	0.0476126	0.0953638
1.0055313	-0.0005348	0.08	0.0423010	0.0847356
1.0043373	-0.0004228	0.07	0.0369969	0.0741185
1.0032854	-0.0003273	0.06	0.0316994	0.0635113
1.0023746	-0.0002485	0.05	0.0264074	0.0529126
1.0016041	-0.0001865	0.04	0.0211200	0.0423209
1.0009718	-0.0001392	0.03	0.0158363	0.0317349
1.0004778	-0.0000983	0.02	0.0105552	0.0211535
1.0001373	-0.0000500	0.01	0.0052763	0.0105757
1.0000000	0.0	0.0	0.0	0.0

EIGENFUNCTIONS, PHI$_{NM}$, FOR ALPHA=1.0, REY NUM=6667

PHI 27				PHI 28	
REAL	IMAGINARY	Y		REAL	IMAGINARY
0.0	0.0	1.00		0.0	0.0
0.0002340	-0.0001452	0.99		0.0012951	-0.0009355
0.0005311	-0.0005567	0.98		0.0028479	-0.0034385
0.0007643	-0.0011490	0.97		0.0039971	-0.0063837
0.0009587	-0.0015419	0.96		0.0049212	-0.0093162
0.0011443	-0.0020239	0.95		0.0057980	-0.0121822
0.0013317	-0.0025014	0.94		0.0066879	-0.0150230
0.0015224	-0.0029795	0.93		0.0075943	-0.0178680
0.0017141	-0.0034599	0.92		0.0085101	-0.0207273
0.0019074	-0.0039439	0.91		0.0094315	-0.0236024
0.0021018	-0.0044288	0.90		0.0103581	-0.0264941
0.0022973	-0.0049177	0.89		0.0112906	-0.0294036
0.0024943	-0.0054099	0.88		0.0122298	-0.0323332
0.0026929	-0.0059058	0.87		0.0131765	-0.0352849
0.0028931	-0.0064058	0.86		0.0141313	-0.0382612
0.0030952	-0.0069104	0.85		0.0150948	-0.0412644
0.0032992	-0.0074199	0.84		0.0160676	-0.0442970
0.0035053	-0.0079348	0.83		0.0170504	-0.0473615
0.0037137	-0.0084554	0.82		0.0180438	-0.0504605
0.0039245	-0.0089823	0.81		0.0190485	-0.0535967
0.0041378	-0.0095160	0.80		0.0200651	-0.0567730
0.0043538	-0.0100568	0.79		0.0210945	-0.0599922
0.0045727	-0.0106054	0.78		0.0221371	-0.0632574
0.0047946	-0.0111623	0.77		0.0231939	-0.0665718
0.0050196	-0.0117280	0.76		0.0242655	-0.0699387
0.0052481	-0.0123032	0.75		0.0253526	-0.0733615
0.0054801	-0.0128884	0.74		0.0264561	-0.0768440
0.0057157	-0.0134842	0.73		0.0275765	-0.0803898
0.0059553	-0.0140915	0.72		0.0287148	-0.0840030
0.0061989	-0.0147108	0.71		0.0298717	-0.0876878
0.0064468	-0.0153429	0.70		0.0310479	-0.0914487
0.0066992	-0.0159886	0.69		0.0322442	-0.0952902
0.0069561	-0.0166488	0.68		0.0334614	-0.0992175
0.0072180	-0.0173244	0.67		0.0347004	-0.1032355
0.0074850	-0.0180163	0.66		0.0359618	-0.1073500
0.0077573	-0.0187253	0.65		0.0372463	-0.1115665
0.0080351	-0.0194525	0.64		0.0385546	-0.1158912
0.0083184	-0.0201987	0.63		0.0398870	-0.1203307
0.0086070	-0.0209652	0.62		0.0412437	-0.1248925
0.0089014	-0.0217535	0.61		0.0426249	-0.1295850
0.0091981	-0.0225663	0.60		0.0440317	-0.1344175
0.0095006	-0.0234073	0.59		0.0454663	-0.1394001
0.0098108	-0.0242801	0.58		0.0469331	-0.1445423
0.0101345	-0.0251893	0.57		0.0484376	-0.1498505
0.0104807	-0.0261319	0.56		0.0499840	-0.1553261
0.0108585	-0.0270982	0.55		0.0515697	-0.1609640
0.0112697	-0.0280669	0.54		0.0531776	-0.1667572
0.0116974	-0.0290383	0.53		0.0547690	-0.1727068
0.0120948	-0.0298965	0.52		0.0562844	-0.1788413
0.0123793	-0.0307338	0.51		0.0576576	-0.1852382

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 27			PHI 28	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0124456	-0.0315836 *	0.50 *	0.0588505	-0.1920416
0.0122038	-0.0326022 *	0.49 *	0.0599369	-0.1994557
0.0116495	-0.0340477 *	0.48 *	0.0610123	-0.2077000
0.0109525	-0.0362429 *	0.47 *	0.0625330	-0.2169136
0.0105257	-0.0394728 *	0.46 *	0.0649965	-0.2270173
0.0111660	-0.0438132 *	0.45 *	0.0689784	-0.2375680
0.0134495	-0.0489226 *	0.44 *	0.0748783	-0.2476634
0.0185138	-0.0538590 *	0.43 *	0.0826083	-0.2559773
0.0266909	-0.0570150 *	0.42 *	0.0912666	-0.2609873
0.0375636	-0.0562647 *	0.41 *	0.0989143	-0.2614222
0.0496687	-0.0493820 *	0.40 *	0.1025932	-0.2568768
0.0593081	-0.0347178 *	0.39 *	0.0986964	-0.2484639
0.0627238	-0.0121255 *	0.38 *	0.0837241	-0.2392986
0.0547338	0.0167668 *	0.37 *	0.0553425	-0.2345933
0.0388039	0.0470935 *	0.36 *	0.0135301	-0.2411882
-0.0118093	0.0718394 *	0.35 *	-0.0384918	-0.2664708
-0.0727410	0.0821178 *	0.34 *	-0.0938752	-0.3167996
-0.1475909	0.0687176 *	0.33 *	-0.1425566	-0.3957336
-0.2277161	0.0239985 *	0.32 *	-0.1725391	-0.5024804
-0.3009624	-0.0561496 *	0.31 *	-0.1719140	-0.6310037
-0.3532991	-0.1707489 *	0.30 *	-0.1312358	-0.7701229
-0.3711343	-0.3130096 *	0.29 *	-0.0457612	-0.9047300
-0.3438522	-0.4707090 *	0.28 *	0.0829917	-1.0179834
-0.2660320	-0.6277058 *	0.27 *	0.2467791	-1.0940828
-0.1388411	-0.7663462 *	0.26 *	0.4314462	-1.1210613
0.0297373	-0.8703030 *	0.25 *	0.6189160	-1.0930042
0.2259294	-0.9272733 *	0.24 *	0.7899753	-1.0112123
0.4322582	-0.9309881 *	0.23 *	0.9273016	-0.8840641
0.6302691	-0.8821369 *	0.22 *	1.0181236	-0.7256097
0.8033495	-0.7886574 *	0.21 *	1.0560122	-0.5532213
0.9390989	-0.6613092 *	0.20 *	1.0414886	-0.3847789
1.0308323	-0.5174097 *	0.19 *	0.9814252	-0.2359632
1.0780106	-0.3723875 *	0.18 *	0.8874367	-0.1181500
1.0856171	-0.2403314 *	0.17 *	0.7736599	-0.0372312
1.0627136	-0.1316519 *	0.16 *	0.6543877	0.0065246
1.0205402	-0.0521104 *	0.15 *	0.5419978	0.0176783
0.9705405	-0.0027329 *	0.14 *	0.4454972	0.0041637
0.9226881	0.0195167 *	0.13 *	0.3698364	-0.0244766
0.8843415	0.0205431 *	0.12 *	0.3159838	-0.0588054
0.8597290	0.0076964 *	0.11 *	0.2816014	-0.0908695
0.8500350	-0.0116008 *	0.10 *	0.2629957	-0.1150683
0.8539473	-0.0309630 *	0.09 *	0.2517856	-0.1284642
0.8684742	-0.0457628 *	0.08 *	0.2449673	-0.1305943
0.8898287	-0.0534326 *	0.07 *	0.2367297	-0.1229182
0.9142097	-0.0533942 *	0.06 *	0.2234459	-0.1080720
0.9383690	-0.0467121 *	0.05 *	0.2029536	-0.0890931
0.9599121	-0.0355839 *	0.04 *	0.1744839	-0.0687519
0.9773490	-0.0227778 *	0.03 *	0.1384308	-0.0490798
0.9899511	-0.0111011 *	0.02 *	0.0960537	-0.0311349
0.9974968	-0.0029543 *	0.01 *	0.0491875	-0.0150032
1.0000000	0.0 *	0.0 *	0.0	0.0

EIGENVALUES, BETA, FOR ALPHA=1.0, REYNOLDS NUM=6667
NM

N= 3

M	REAL	IMAGINARY	M	REAL	IMAGINARY
1	-.4413174E 01	-.8727378E-01	61	-.2905254E 01	-.1364573E 01
2	-.4408765E 01	-.9017515E-01	62	-.2336203E 01	-.1365273E 01
3	-.4333499E 01	-.1602706E 00	63	-.2337908E 01	-.1368691E 01
4	-.4336041E 01	-.1613254E 00	64	-.3228549E 01	-.1400818E 01
5	-.8821087E 00	-.2231952E 00	65	-.2650385E 01	-.1491906E 01
6	-.8808317E 00	-.2245161E 00	66	-.2648380E 01	-.1492295E 01
7	-.4265459E 01	-.2275892E 00	67	-.3256177E 01	-.1520919E 01
8	-.4264257E 01	-.2328436E 00	68	-.2776257E 01	-.1543896E 01
9	-.4186263E 01	-.3002570E 00	69	-.3205691E 01	-.1563792E 01
10	-.4192612E 01	-.3042952E 00	70	-.2773599E 01	-.1574293E 01
11	-.4118096E 01	-.3663191E 00	71	-.3023844E 01	-.1581603E 01
12	-.4121826E 01	-.3760930E 00	72	-.3075754E 01	-.1608840E 01
13	-.4037111E 01	-.4390996E 00	73	-.3225835E 01	-.1703389E 01
14	-.4051222E 01	-.4478159E 00	74	-.3200850E 01	-.1756623E 01
15	-.3967375E 01	-.5025786E 00	75	-.2773507E 01	-.1831895E 01
16	-.3981420E 01	-.5198897E 00	76	-.2794538E 01	-.1855060E 01
17	-.1348847E 01	-.5258946E 00	77	-.3203832E 01	-.1877126E 01
18	-.1346580E 01	-.5279731E 00	78	-.3196930E 01	-.1935582E 01
19	-.3803280E 01	-.5702356E 00	79	-.3184563E 01	-.2040288E 01
20	-.3874936E 01	-.5785884E 00	80	-.2807680E 01	-.2103337E 01
21	-.3911830E 01	-.5918869E 00	81	-.2827878E 01	-.2107950E 01
22	-.6841463E 00	-.6332928E 00	82	-.3182471E 01	-.2110809E 01
23	-.6854060E 00	-.6334714E 00	83	-.3164256E 01	-.2206586E 01
24	-.3792892E 01	-.6596134E 00	84	-.3162281E 01	-.2283216E 01
25	-.3842983E 01	-.6642365E 00	85	-.2863424E 01	-.2351235E 01
26	-.3774373E 01	-.7365083E 00	86	-.3127275E 01	-.2367120E 01
27	-.3731916E 01	-.7523556E 00	87	-.2858515E 01	-.2371325E 01
28	-.1732645E 01	-.7602740E 00	88	-.3140619E 01	-.2455387E 01
29	-.1729243E 01	-.7629452E 00	89	-.3107800E 01	-.2495376E 01
30	-.3706451E 01	-.8091258E 00	90	-.2911492E 01	-.2609130E 01
31	-.3664326E 01	-.8245605E 00	91	-.2893288E 01	-.2637568E 01
32	-.1211195E 01	-.8693676E 00	92	-.3108294E 01	-.2642501E 01
33	-.1212984E 01	-.8701211E 00	93	-.3117529E 01	-.2648021E 01
34	-.3638786E 01	-.8816622E 00	94	-.3033004E 01	-.2710875E 01
35	-.3601037E 01	-.9053929E 00	95	-.3128352E 01	-.2810340E 01
36	-.3571777E 01	-.9545348E 00	96	-.3123104E 01	-.2870854E 01
37	-.2071460E 01	-.9550790E 00	97	-.2883206E 01	-.2888136E 01
38	-.2066622E 01	-.9580747E 00	98	-.2906986E 01	-.2916962E 01
39	-.3533735E 01	-.9769658E 00	99	-.3142299E 01	-.2984145E 01
40	-.3504979E 01	-.1027319E 01	100	-.3132260E 01	-.3061379E 01
41	-.3470104E 01	-.1055013E 01	101	-.2864592E 01	-.3147872E 01
42	-.1635165E 01	-.1060273E 01	102	-.3144053E 01	-.3163633E 01
43	-.1637222E 01	-.1061810E 01	103	-.2901832E 01	-.3176671E 01
44	-.3439072E 01	-.1100392E 01	104	-.3122497E 01	-.3255339E 01
45	-.2380628E 01	-.1122110E 01	105	-.3129427E 01	-.3326719E 01
46	-.2373970E 01	-.1125001E 01	106	-.3038674E 01	-.3355080E 01
47	-.3402040E 01	-.1126859E 01	107	-.2852177E 01	-.3423278E 01
48	-.3372550E 01	-.1173634E 01	108	-.3140428E 01	-.3466741E 01
49	-.3347043E 01	-.1202967E 01	109	-.3142318E 01	-.3481668E 01
50	-.2003674E 01	-.1223120E 01	110	-.2877289E 01	-.3483674E 01
51	-.2005713E 01	-.1225570E 01	111	-.3164972E 01	-.3634133E 01
52	-.3308891E 01	-.1246794E 01	112	-.3168540E 01	-.3663417E 01
53	-.3245645E 01	-.1249292E 01	113	-.2844672E 01	-.3697833E 01
54	-.2668495E 01	-.1267681E 01	114	-.2834713E 01	-.3749322E 01
55	-.2659821E 01	-.1269735E 01	115	-.3181637E 01	-.3811436E 01
56	-.3075990E 01	-.1308413E 01	116	-.3182752E 01	-.3837187E 01
57	-.3238791E 01	-.1310488E 01	117	-.2924630E 01	-.3946597E 01
58	-.3292094E 01	-.1348804E 01	118	-.3208447E 01	-.3996489E 01
59	-.3076571E 01	-.1351245E 01	119	-.2810133E 01	-.4005043E 01
60	-.2909495E 01	-.1353781E 01	120	-.3191349E 01	-.4006113E 01

EIGENVALUES, BETA$_{NM}$, FOR ALPHA=1.0, REYNOLDS NUM=6667

N= 3
CONTINUED

M	REAL	IMAGINARY
E121	-.2854963E 01	-.4027184E 01
O122	-.3188818E 01	-.4171208E 01
E123	-.3244063E 01	-.4182947E 01
O124	-.2781751E 01	-.4258524E 01
E125	-.2797250E 01	-.4270984E 01
O126	-.3180019E 01	-.4291250E 01
E127	-.3275849E 01	-.4367185E 01
O128	-.3233492E 01	-.4420706E 01
E129	-.2781964E 01	-.4488647E 01
O130	-.2751363E 01	-.4510025E 01
E131	-.3302051E 01	-.4550095E 01
O132	-.3273308E 01	-.4578213E 01
E133	-.2745532E 01	-.4587562E 01
O134	-.2763711E 01	-.4593071E 01
E135	-.2917377E 01	-.4621600E 01
O136	-.2944506E 01	-.4639468E 01
E137	-.2598908E 01	-.4643533E 01
O138	-.2598996E 01	-.4644277E 01
E139	-.3071519E 01	-.4671753E 01
O140	-.3121085E 01	-.4690176E 01
O141	-.2449759E 01	-.4713555E 01
E142	-.2449787E 01	-.4713562E 01
O143	-.3286477E 01	-.4721085E 01
E144	-.3218495E 01	-.4723323E 01
E145	-.3327145E 01	-.4725471E 01
O146	-.3327695E 01	-.4762703E 01
O147	-.2294906E 01	-.4788087E 01
O148	-.2294893E 01	-.4788087E 01
E149	-.3362427E 01	-.4807607E 01
O150	-.3400417E 01	-.4842819E 01

M	REAL	IMAGINARY
*E151	-.2133193E 01	-.4868071E 01
*O152	-.2133204E 01	-.4868073E 01
*E153	-.3433107E 01	-.4879327E 01
*O154	-.3465776E 01	-.4916240E 01
*E155	-.3499286E 01	-.4953C84E 01
*E156	-.1963371E 01	-.4954264E 01
*O157	-.1963384E 01	-.4954265E 01
*O158	-.3532805E 01	-.4989944E 01
*E159	-.3566388E 01	-.5026811E 01
*E160	-.1783680E 01	-.5047720E 01
*O161	-.1783693E 01	-.5047722E 01
*O162	-.3600127E 01	-.5063649E 01
*E163	-.3633985E 01	-.5100481E 01
*C164	-.3667950E 01	-.5137303E 01
*E165	-.1591664E 01	-.5149937E 01
*O166	-.1591680E 01	-.5149938E 01
*E167	-.3702038E 01	-.5174126E 01
*O168	-.3736243E 01	-.5210935E C1
*E169	-.3770569E 01	-.5247742E 01
*E170	-.1383647E 01	-.5263172E 01
*O171	-.1383663E 01	-.5263173E C1
*C172	-.3805009E 01	-.5284538E 01
*E173	-.3839570E 01	-.5321333E 01
*O174	-.3874245E 01	-.5358118E 01
*E175	-.1153566E 01	-.5391179E 01
*O176	-.1153584E 01	-.5391180E C1
*E177	-.3909039E 01	-.5394902E 01
*O178	-.3943948E 01	-.5431679E 01
*E179	-.3978976E 01	-.5468452E 01
*C180	-.4014117E 01	-.5505220E 01
*E181	-.8897940E 00	-.5541185E 01
*O182	-.8898144E 00	-.5541186E 01
*E183	-.4049378E 01	-.5541986E 01
*O184	-.4084750E 01	-.5578747E 01
*E185	-.4120242E 01	-.5615505E 01
*O186	-.4155845E 01	-.5652260E 01
*E187	-.4191568E 01	-.5689013E 01
*O188	-.4227399E 01	-.5725763E 01
*E189	-.5622157E 00	-.5731934E 01
*O190	-.5622396E 00	-.5731936E 01
*E191	-.4263352E 01	-.5762511E 01
*O192	-.4299412E 01	-.5799258E 01
*E193	-.4335594E 01	-.5836CC2E 01
*O194	-.4371880E 01	-.5872747E 01
*E195	-.4408291E 01	-.5909489E 01
*O196	-.4444801E 01	-.5946233E 01
*E197	-.4481446E 01	-.5982969E 01
*O198	-.8132064E-01	-.7510401E 01
*E199	-.8107096E-01	-.7511222E 01

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

	PHI 31			PHI 32	
	REAL	IMAGINARY	Y	REAL	IMAGINARY
1.0	0.0	0.0	* 1.00 *	0.0	0.0
0.99	0.000 0757	-0.0000 0268	* 0.99 *	-0.0000 9217	-0.0000 4733
0.98	0.000 1695	-0.0000 1129	* 0.98 *	-0.0000 5621	-0.0000 5899
0.97	0.000 2517	-0.0000 2120	* 0.97 *	-0.0000 4226	-0.0000 4821
0.96	0.000 3292	-0.0000 3103	* 0.96 *	-0.0000 5838	-0.0000 3381
0.95	0.000 4067	-0.0000 4076	* 0.95 *	-0.0000 7430	-0.0000 2021
0.94	0.000 4849	-0.0000 5051	* 0.94 *	-0.0000 9037	-0.0000 0718
0.93	0.000 5637	-0.0000 6031	* 0.93 *	-0.0001 0656	0.0000 0575
0.92	0.000 6432	-0.0000 7018	* 0.92 *	-0.0001 2288	0.0000 1871
0.91	0.000 7235	-0.0000 8014	* 0.91 *	-0.0001 3933	0.0000 3171
0.90	0.000 8045	-0.0000 9019	* 0.90 *	-0.0001 5595	0.0000 4477
0.89	0.000 8865	-0.0001 0034	* 0.89 *	-0.0001 7274	0.0000 5788
0.88	0.000 9695	-0.0001 1061	* 0.88 *	-0.0001 8974	0.0000 7107
0.87	0.001 0536	-0.0001 2101	* 0.87 *	-0.0002 0696	0.0000 8436
0.86	0.001 1389	-0.0001 3155	* 0.86 *	-0.0002 2441	0.0000 9777
0.85	0.001 2256	-0.0001 4225	* 0.85 *	-0.0002 4213	0.0001 1131
0.84	0.001 3137	-0.0001 5312	* 0.84 *	-0.0002 6014	0.0001 2500
0.83	0.001 4034	-0.0001 6417	* 0.83 *	-0.0002 7846	0.0001 3887
0.82	0.001 4947	-0.0001 7542	* 0.82 *	-0.0002 9711	0.0001 5293
0.81	0.001 5878	-0.0001 8688	* 0.81 *	-0.0003 1612	0.0001 6720
0.80	0.001 6828	-0.0001 9857	* 0.80 *	-0.0003 3552	0.0001 8171
0.79	0.001 7799	-0.0002 1051	* 0.79 *	-0.0003 5532	0.0001 9648
0.78	0.001 8791	-0.0002 2270	* 0.78 *	-0.0003 7556	0.0002 1153
0.77	0.001 9806	-0.0002 3517	* 0.77 *	-0.0003 9627	0.0002 2690
0.76	0.002 0846	-0.0002 4794	* 0.76 *	-0.0004 1747	0.0002 4259
0.75	0.002 1911	-0.0002 6103	* 0.75 *	-0.0004 3919	0.0002 5865
0.74	0.002 3004	-0.0002 7445	* 0.74 *	-0.0004 6148	0.0002 7511
0.73	0.002 4126	-0.0002 8822	* 0.73 *	-0.0004 8435	0.0002 9198
0.72	0.002 5279	-0.0003 0237	* 0.72 *	-0.0005 0784	0.0003 0931
0.71	0.002 6464	-0.0003 1691	* 0.71 *	-0.0005 3200	0.0003 2713
0.70	0.002 7683	-0.0003 3188	* 0.70 *	-0.0005 5686	0.0003 4548
0.69	0.002 8938	-0.0003 4729	* 0.69 *	-0.0005 8245	0.0003 6439
0.68	0.003 0231	-0.0003 6317	* 0.68 *	-0.0006 0881	0.0003 8391
0.67	0.003 1564	-0.0003 7955	* 0.67 *	-0.0006 3601	0.0004 0409
0.66	0.003 2939	-0.0003 9645	* 0.66 *	-0.0006 6407	0.0004 2496
0.65	0.003 4359	-0.0004 1391	* 0.65 *	-0.0006 9306	0.0004 4659
0.64	0.003 5826	-0.0004 3195	* 0.64 *	-0.0007 2298	0.0004 6903
0.63	0.003 7342	-0.0004 5061	* 0.63 *	-0.0007 5394	0.0004 9233
0.62	0.003 8911	-0.0004 6993	* 0.62 *	-0.0007 8597	0.0005 1656
0.61	0.004 0532	-0.0004 8993	* 0.61 *	-0.0008 1914	0.0005 4181
0.60	0.004 2213	-0.0005 1067	* 0.60 *	-0.0008 5352	0.0005 6813
0.59	0.004 3954	-0.0005 3219	* 0.59 *	-0.0008 8915	0.0005 9561
0.58	0.004 5760	-0.0005 5452	* 0.58 *	-0.0009 2613	0.0006 2436
0.57	0.004 7632	-0.0005 7771	* 0.57 *	-0.0009 6451	0.0006 5446
0.56	0.004 9577	-0.0006 0183	* 0.56 *	-0.0010 0439	0.0006 8603
0.55	0.005 1596	-0.0006 2691	* 0.55 *	-0.0010 4585	0.0007 1920
0.54	0.005 3695	-0.0006 5303	* 0.54 *	-0.0010 8899	0.0007 5409
0.53	0.005 5877	-0.0006 8024	* 0.53 *	-0.0011 3391	0.0007 9087
0.52	0.005 8148	-0.0007 0862	* 0.52 *	-0.0011 8069	0.0008 2969
0.51	0.006 0511	-0.0007 3824	* 0.51 *	-0.0012 2947	0.0008 7075

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 31			PHI 32	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0062974	-0.0076917 *	0.50 *	-0.1280361	0.0091425
0.0065542	-0.0080152 *	0.49 *	-0.1333506	0.0096042
0.0068222	-0.0083537 *	0.48 *	-0.1389038	0.0100950
0.0071022	-0.0087081 *	0.47 *	-0.1447111	0.0106177
0.0073951	-0.0090793 *	0.46 *	-0.1507882	0.0111760
0.0077012	-0.0094677 *	0.45 *	-0.1571528	0.0117746
0.0080208	-0.0098743 *	0.44 *	-0.1638238	0.0124201
0.0083536	-0.0103003 *	0.43 *	-0.1708236	0.0131209
0.0086963	-0.0107483 *	0.42 *	-0.1781799	0.0138869
0.0090493	-0.0112236 *	0.41 *	-0.1859270	0.0147272
0.0094122	-0.0117348 *	0.40 *	-0.1941065	0.0156464
0.0097899	-0.0122935 *	0.39 *	-0.2027650	0.0166392
0.0101956	-0.0129125 *	0.38 *	-0.2119471	0.0176857
0.0106536	-0.0135997 *	0.37 *	-0.2216831	0.0187507
0.0111993	-0.0143502 *	0.36 *	-0.2319724	0.0197905
0.0118735	-0.0151348 *	0.35 *	-0.2427682	0.0207734
0.0127087	-0.0158905 *	0.34 *	-0.2539698	0.0217135
0.0137069	-0.0165177 *	0.33 *	-0.2654352	0.0227167
0.0148105	-0.0168883 *	0.32 *	-0.2770191	0.0240286
0.0158740	-0.0168730 *	0.31 *	-0.2886470	0.0260695
0.0166446	-0.0163872 *	0.30 *	-0.3004162	0.0294350
0.0167650	-0.0154541 *	0.29 *	-0.3127117	0.0348452
0.0158074	-0.0142739 *	0.28 *	-0.3263081	0.0430292
0.0133457	-0.0132843 *	0.27 *	-0.3424250	0.0545486
0.0090625	-0.0131915 *	0.26 *	-0.3627019	0.0695801
0.0028778	-0.0149548 *	0.25 *	-0.3890674	0.0876962
-0.0049211	-0.0197116 *	0.24 *	-0.4235018	0.1076922
-0.0135784	-0.0286428 *	0.23 *	-0.4677113	0.1275149
-0.0218247	-0.0427900 *	0.22 *	-0.5227596	0.1443283
-0.0279080	-0.0628512 *	0.21 *	-0.5887210	0.1547401
-0.0297122	-0.0889898 *	0.20 *	-0.6644235	0.1551715
-0.0249536	-0.1206925 *	0.19 *	-0.7473423	0.1423288
-0.0114326	-0.1567098 *	0.18 *	-0.8336803	0.1137075
0.0126943	-0.1950974 *	0.17 *	-0.9186401	0.0680492
0.0486661	-0.2333611 *	0.16 *	-0.9968573	0.0056724
0.0969286	-0.2686902 *	0.15 *	-1.0629349	-0.0713786
0.1570378	-0.2982492 *	0.14 *	-1.1119995	-0.1593971
0.2276676	-0.3194869 *	0.13 *	-1.1401949	-0.2532825
0.3067201	-0.3304211 *	0.12 *	-1.1450500	-0.3469785
0.3915185	-0.3298632 *	0.11 *	-1.1256638	-0.4340148
0.4790530	-0.3175533 *	0.10 *	-1.0826921	-0.5080879
0.5662414	-0.2941979 *	0.09 *	-1.0181637	-0.5635974
0.6501716	-0.2614082 *	0.08 *	-0.9351371	-0.5961030
0.7282933	-0.2215557 *	0.07 *	-0.8372843	-0.6026302
0.7985428	-0.1775665 *	0.06 *	-0.7284465	-0.5818434
0.8593922	-0.1326801 *	0.05 *	-0.6122264	-0.5340710
0.9098279	-0.0901982 *	0.04 *	-0.4916691	-0.4612111
0.9492729	-0.0532460 *	0.03 *	-0.3690624	-0.3665467
0.9774737	-0.0245605 *	0.02 *	-0.2458715	-0.2545015
0.9943741	-0.0063171 *	0.01 *	-0.1228063	-0.1303641
1.0000000	0.0 *	0.0 *	0.0	0.0

EIGENFUNCTIONS, PHI_{NM}, FOR ALPHA=1.0, REY NUM=6667

PHI 33			PHI 34	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	1.00	0.0	0.0
0.0001959	-0.0001332	0.99	-0.0007294	0.0005292
0.0003860	-0.0004497	0.98	-0.0014621	0.0017677
0.0005367	-0.0007940	0.97	-0.0020209	0.0031104
0.0006746	-0.0011319	0.96	-0.0025365	0.0044277
0.0008137	-0.0014666	0.95	-0.0030424	0.0057325
0.0009534	-0.0018022	0.94	-0.0035621	0.0070411
0.0010953	-0.0021461	0.93	-0.0040872	0.0083584
0.0012384	-0.0024895	0.92	-0.0046170	0.0096857
0.0013828	-0.0028238	0.91	-0.0051517	0.0110243
0.0015288	-0.0031704	0.90	-0.0056923	0.0123757
0.0016766	-0.0035207	0.89	-0.0062393	0.0137414
0.0018262	-0.0038751	0.88	-0.0067933	0.0151232
0.0019780	-0.0042340	0.87	-0.0073551	0.0165228
0.0021320	-0.0045980	0.86	-0.0079254	0.0179419
0.0022884	-0.0049674	0.85	-0.0085047	0.0193824
0.0024475	-0.0053428	0.84	-0.0090938	0.0208461
0.0026095	-0.0057246	0.83	-0.0096935	0.0223350
0.0027745	-0.0061134	0.82	-0.0103045	0.0238509
0.0029427	-0.0065096	0.81	-0.0109276	0.0253959
0.0031144	-0.0069139	0.80	-0.0115635	0.0269722
0.0032898	-0.0073267	0.79	-0.0122130	0.0285819
0.0034692	-0.0077487	0.78	-0.0128771	0.0302273
0.0036526	-0.0081804	0.77	-0.0135566	0.0319107
0.0038405	-0.0086225	0.76	-0.0142524	0.0336346
0.0040331	-0.0090756	0.75	-0.0149654	0.0354014
0.0042305	-0.0095405	0.74	-0.0156965	0.0372139
0.0044331	-0.0100178	0.73	-0.0164469	0.0390748
0.0046412	-0.0105082	0.72	-0.0172174	0.0409871
0.0048551	-0.0110126	0.71	-0.0180092	0.0429536
0.0050750	-0.0115317	0.70	-0.0188235	0.0449777
0.0053013	-0.0120665	0.69	-0.0196613	0.0470626
0.0055343	-0.0126177	0.68	-0.0205238	0.0492119
0.0057744	-0.0131865	0.67	-0.0214124	0.0514293
0.0060218	-0.0137737	0.66	-0.0223283	0.0537185
0.0062771	-0.0143804	0.65	-0.0232728	0.0560839
0.0065405	-0.0150078	0.64	-0.0242475	0.0585296
0.0068124	-0.0156570	0.63	-0.0252537	0.0610603
0.0070933	-0.0163292	0.62	-0.0262930	0.0636809
0.0073837	-0.0170259	0.61	-0.0273670	0.0663966
0.0076839	-0.0177485	0.60	-0.0284773	0.0692129
0.0079945	-0.0184983	0.59	-0.0296257	0.0721357
0.0083159	-0.0192772	0.58	-0.0308140	0.0751712
0.0086488	-0.0200867	0.57	-0.0320440	0.0783260
0.0089934	-0.0209287	0.56	-0.0333176	0.0816077
0.0093505	-0.0218052	0.55	-0.0346367	0.0850236
0.0097204	-0.0227183	0.54	-0.0360035	0.0885824
0.0101036	-0.0236707	0.53	-0.0374202	0.0922931
0.0105016	-0.0246652	0.52	-0.0388891	0.0961654
0.0109137	-0.0257048	0.51	-0.0404132	0.1002099

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 33			PHI 34	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0113436	-0.0267926	0.50	-0.0419956	0.1044379
0.0117932	-0.0279302	0.49	-0.0436389	0.1088572
0.0122644	-0.0291178	0.48	-0.0453445	0.1134809
0.0127566	-0.0303530	0.47	-0.0471102	0.1183195
0.0132613	-0.0316333	0.46	-0.0489294	0.1233886
0.0137645	-0.0329608	0.45	-0.0507920	0.1287131
0.0142425	-0.0343508	0.44	-0.0526901	0.1343319
0.0146725	-0.0358422	0.43	-0.0546281	0.1403013
0.0150505	-0.0375038	0.42	-0.0566395	0.1466883
0.0154192	-0.0394273	0.41	-0.0588004	0.1535510
0.0158966	-0.0416995	0.40	-0.0612331	0.1609043
0.0166904	-0.0443458	0.39	-0.0640837	0.1686746
0.0180754	-0.0472548	0.38	-0.0674643	0.1766616
0.0203166	-0.0501025	0.37	-0.0713587	0.1845333
0.0235288	-0.0523161	0.36	-0.0755076	0.1918803
0.0274931	-0.0531210	0.35	-0.0793132	0.1983519
0.0314781	-0.0517066	0.34	-0.0818126	0.2038689
0.0341394	-0.0475178	0.33	-0.0817777	0.2088749
0.0335784	-0.0406338	0.32	-0.0779685	0.2145560
0.0276194	-0.0321436	0.31	-0.0695328	0.2229322
0.0143100	-0.0243938	0.30	-0.0564815	0.2367356
-0.0074204	-0.0209807	0.29	-0.0401220	0.2590246
-0.0370853	-0.0263968	0.28	-0.0233043	0.2925569
-0.0721326	-0.0453250	0.27	-0.0103497	0.3390205
-0.1077895	-0.0816731	0.26	-0.0065925	0.3982947
-0.1373811	-0.1375393	0.25	-0.0175601	0.4679373
-0.1531439	-0.2123480	0.24	-0.0479200	0.5430759
-0.1474237	-0.3023981	0.23	-0.1004069	0.6167971
-0.1141339	-0.4009787	0.22	-0.1749735	0.6810161
-0.0494969	-0.4990976	0.21	-0.2683799	0.7276865
0.0461136	-0.5867119	0.20	-0.3743504	0.7501169
0.1689224	-0.6542377	0.19	-0.4842974	0.7441272
0.3116639	-0.6940396	0.18	-0.5884873	0.7088003
0.4646785	-0.7016129	0.17	-0.6774256	0.6466773
0.6172943	-0.6762283	0.16	-0.7431940	0.5633632
0.7593209	-0.6209456	0.15	-0.7804936	0.4666347
0.8823765	-0.5429181	0.14	-0.7872217	0.3652402
0.9808251	-0.4478432	0.13	-0.7645165	0.2676269
1.0521955	-0.3476751	0.12	-0.7163106	0.1808278
1.0979716	-0.2503427	0.11	-0.6485263	0.1096812
1.1185427	-0.1631811	0.10	-0.5680929	0.0564807
1.1213655	-0.0913167	0.09	-0.4819710	0.0210559
1.1110382	-0.0373637	0.08	-0.3963371	0.0012109
1.0929489	-0.0015088	0.07	-0.3160276	-0.0066018
1.0717220	0.0180967	0.06	-0.2442686	-0.0065167
1.0518547	0.0247495	0.05	-0.1826689	-0.0025322
1.0326166	0.0225261	0.04	-0.1314055	0.0020656
1.0181961	0.0156332	0.03	-0.0895187	0.0050707
1.0079966	0.0078437	0.02	-0.0552351	0.0054925
1.0019817	0.0020575	0.01	-0.0262590	0.0034692
1.0000000	0.0	0.0	0.0	0.0

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

PHI 35			PHI 36	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
0.1.59377	0.0362873	* 0.99 *	-0.0331400	-0.0122749
0.3797984	0.0471397	* 0.98 *	-0.1195248	-0.0178005
0.7444614	-0.0221014	* 0.97 *	-0.2353061	0.0013204
1.1471424	-0.1720920	* 0.96 *	-0.3638678	0.0456898
1.5627174	-0.3767260	* 0.95 *	-0.4970838	0.1071653
1.9834414	-0.5983911	* 0.94 *	-0.6321682	0.1737764
2.4057312	-0.7968522	* 0.93 *	-0.7675466	0.2326869
2.8200045	-0.9366080	* 0.92 *	-0.8997109	0.2726670
3.2068405	-0.9941965	* 0.91 *	-1.0221090	0.2864888
3.5400982	-0.9638662	* 0.90 *	-1.1262541	0.2727058
3.7949171	-0.8589322	* 0.89 *	-1.2043285	0.2359763
3.9564953	-0.7074034	* 0.88 *	-1.2519588	0.1855308
4.0254126	-0.5430860	* 0.87 *	-1.2698002	0.1322322
4.0171652	-0.3955964	* 0.86 *	-1.2632408	0.0853719
3.9564943	-0.2831556	* 0.85 *	-1.2404699	0.0504395
3.8694439	-0.2104728	* 0.84 *	-1.2098932	0.0285650
3.7766371	-0.1715062	* 0.83 *	-1.1780148	0.0175101
3.6900368	-0.1548808	* 0.82 *	-1.1484804	0.0134582
3.6134348	-0.1491958	* 0.81 *	-1.1223192	0.0127110
3.5452871	-0.1463124	* 0.80 *	-1.0989046	0.0126980
3.4826147	-0.1421753	* 0.79 *	-1.0770254	0.0121870
3.4203892	-0.1358896	* 0.78 *	-1.0556345	0.0109497
3.3585453	-0.1281815	* 0.77 *	-1.0341454	0.0092527
3.2959309	-0.1201226	* 0.76 *	-1.0123997	0.0074499
3.2327719	-0.1124660	* 0.75 *	-0.9904820	0.0057798
3.1695404	-0.1055145	* 0.74 *	-0.9685452	0.0043326
3.1 66456	-0.0992623	* 0.73 *	-0.9467188	0.0031005
3.0443411	-0.0935815	* 0.72 *	-0.9250795	0.0020396
2.9827557	-0.0883438	* 0.71 *	-0.9036643	0.0011078
2.9219522	-0.0834626	* 0.70 *	-0.8824905	0.0002774
2.8619757	-0.0786895	* 0.69 *	-0.8615698	-0.0004670
2.8028679	-0.0745971	* 0.68 *	-0.8409132	-0.0011341
2.7446699	-0.0705644	* 0.67 *	-0.8205321	-0.0017306
2.6874218	-0.0667730	* 0.66 *	-0.8004373	-0.0022626
2.6311550	-0.0632039	* 0.65 *	-0.7806368	-0.0027361
2.5758982	-0.0598400	* 0.64 *	-0.7611378	-0.0031567
2.5216713	-0.0566653	* 0.63 *	-0.7419448	-0.0035295
2.4684906	-0.0536659	* 0.62 *	-0.7230614	-0.0038589
2.4163704	-0.0508292	* 0.61 *	-0.7044896	-0.0041488
2.3653173	-0.0481440	* 0.60 *	-0.6862309	-0.0044028
2.3153402	-0.0456002	* 0.59 *	-0.6682850	-0.0046238
2.2664404	-0.0431885	* 0.58 *	-0.6506514	-0.0048149
2.2186213	-0.0409005	* 0.57 *	-0.6333289	-0.0049784
2.1718807	-0.0387286	* 0.56 *	-0.6163152	-0.0051168
2.1262169	-0.0366658	* 0.55 *	-0.5996079	-0.0052320
2.0816259	-0.0347055	* 0.54 *	-0.5832041	-0.0053261
2.0381031	-0.0328418	* 0.53 *	-0.5671000	-0.0054007
1.9956408	-0.0310693	* 0.52 *	-0.5512918	-0.0054573
1.9542313	-0.0293828	* 0.51 *	-0.5357752	-0.0054975

EIGENFUNCTIONS, PHI$_{NM}$, FOR ALPHA=1.0, REY NUM=6667

(CONTINUED)

PHI 35				PHI 36	
REAL	IMAGINARY	Y		REAL	IMAGINARY
1.9138680	-0.0277776	* 0.50	*	-0.5205459	-0.0055226
1.8745493	-0.0262495	* 0.49	*	-0.5055990	-0.0055336
1.8362398	-0.0247942	* 0.48	*	-0.4909294	-0.0055319
1.7989559	-0.0234080	* 0.47	*	-0.4765320	-0.0055182
1.7626772	-0.0220875	* 0.46	*	-0.4624017	-0.0054937
1.7273941	-0.0208293	* 0.45	*	-0.4485326	-0.0054591
1.6930943	-0.0196303	* 0.44	*	-0.4349195	-0.0054152
1.6597672	-0.0184876	* 0.43	*	-0.4215564	-0.0053628
1.6273994	-0.0173986	* 0.42	*	-0.4084376	-0.0053025
1.5959816	-0.0163607	* 0.41	*	-0.3955573	-0.0052350
1.5655012	-0.0153716	* 0.40	*	-0.3829095	-0.0051607
1.5359449	-0.0144289	* 0.39	*	-0.3704883	-0.0050803
1.5073032	-0.0135307	* 0.38	*	-0.3582878	-0.0049942
1.4795628	-0.0126749	* 0.37	*	-0.3463019	-0.0049029
1.4527130	-0.0118596	* 0.36	*	-0.3345245	-0.0048068
1.4267416	-0.0110832	* 0.35	*	-0.3229496	-0.0047062
1.4016371	-0.0103440	* 0.34	*	-0.3115715	-0.0046016
1.3773890	-0.0096403	* 0.33	*	-0.3003837	-0.0044932
1.3539867	-0.0089708	* 0.32	*	-0.2893805	-0.0043814
1.3314180	-0.0083341	* 0.31	*	-0.2785557	-0.0042664
1.3096733	-0.0077288	* 0.30	*	-0.2679034	-0.0041485
1.2887421	-0.0071538	* 0.29	*	-0.2574177	-0.0040280
1.2686148	-0.0066078	* 0.28	*	-0.2470925	-0.0039050
1.2492809	-0.0060899	* 0.27	*	-0.2369221	-0.0037797
1.2307301	-0.0055988	* 0.26	*	-0.2269006	-0.0036524
1.2129555	-0.0051338	* 0.25	*	-0.2170219	-0.0035233
1.1959457	-0.0046938	* 0.24	*	-0.2072805	-0.0033924
1.1796932	-0.0042781	* 0.23	*	-0.1976703	-0.0032600
1.1641903	-0.0038857	* 0.22	*	-0.1881858	-0.0031261
1.1494274	-0.0035160	* 0.21	*	-0.1788210	-0.0029910
1.1353989	-0.0031682	* 0.20	*	-0.1695704	-0.0028547
1.1220951	-0.0028417	* 0.19	*	-0.1604283	-0.0027173
1.1095104	-0.0025359	* 0.18	*	-0.1513891	-0.0025789
1.0976381	-0.0022500	* 0.17	*	-0.1424471	-0.0024396
1.0864716	-0.0019837	* 0.16	*	-0.1335967	-0.0022996
1.0760040	-0.0017365	* 0.15	*	-0.1248324	-0.0021588
1.0662308	-0.0015077	* 0.14	*	-0.1161487	-0.0020174
1.0571470	-0.0012970	* 0.13	*	-0.1075401	-0.0018754
1.0487471	-0.0011041	* 0.12	*	-0.0990010	-0.0017329
1.0410261	-0.0009285	* 0.11	*	-0.0905263	-0.0015900
1.0339794	-0.0007699	* 0.10	*	-0.0821102	-0.0014466
1.0276051	-0.0006281	* 0.09	*	-0.0737474	-0.0013029
1.0218973	-0.0005026	* 0.08	*	-0.0654325	-0.0011589
1.0168552	-0.0003934	* 0.07	*	-0.0571603	-0.0010145
1.0124741	-0.0003001	* 0.06	*	-0.0489252	-0.0008700
1.0087519	-0.0002228	* 0.05	*	-0.0407221	-0.0007253
1.0056868	-0.0001617	* 0.04	*	-0.0325454	-0.0005803
1.0032759	-0.0001168	* 0.03	*	-0.0243899	-0.0004353
1.0015144	-0.0000843	* 0.02	*	-0.0162504	-0.0002904
1.0004063	-0.0000491	* 0.01	*	-0.0081219	-0.0001456
1.0000000	0.0	* 0.0	*	0.0	0.0

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

PHI 37			PHI 38	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
0.0002842	-0.0002469	* 0.99 *	0.0006893	-0.0006311
0.0005424	-0.0007937	* 0.98 *	0.0012942	-0.0020056
0.0007216	-0.0013781	* 0.97 *	0.0017202	-0.0034678
0.0008894	-0.0019491	* 0.96 *	0.0020563	-0.0048954
0.0010408	-0.0025145	* 0.95 *	0.0024168	-0.0063093
0.0012045	-0.0030818	* 0.94 *	0.0027854	-0.0077279
0.0013701	-0.0036530	* 0.93 *	0.0031585	-0.0091563
0.0015372	-0.0042286	* 0.92 *	0.0035350	-0.0105959
0.0017060	-0.0048092	* 0.91 *	0.0039153	-0.0120478
0.0018766	-0.0053953	* 0.90 *	0.0042998	-0.0135137
0.0020493	-0.0059878	* 0.89 *	0.0046891	-0.0149954
0.0022243	-0.0065872	* 0.88 *	0.0050836	-0.0164947
0.0024017	-0.0071945	* 0.87 *	0.0054837	-0.0180135
0.0025819	-0.0078103	* 0.86 *	0.0058899	-0.0195536
0.0027649	-0.0084355	* 0.85 *	0.0063027	-0.0211172
0.0029511	-0.0090708	* 0.84 *	0.0067225	-0.0227062
0.0031406	-0.0097171	* 0.83 *	0.0071499	-0.0243227
0.0033337	-0.0103753	* 0.82 *	0.0075853	-0.0259689
0.0035305	-0.0110462	* 0.81 *	0.0080292	-0.0276469
0.0037314	-0.0117308	* 0.80 *	0.0084822	-0.0293592
0.0039365	-0.0124300	* 0.79 *	0.0089447	-0.0311080
0.0041462	-0.0131448	* 0.78 *	0.0094175	-0.0328959
0.0043606	-0.0138763	* 0.77 *	0.0099009	-0.0347255
0.0045801	-0.0146255	* 0.76 *	0.0103956	-0.0365994
0.0048048	-0.0153936	* 0.75 *	0.0109022	-0.0385204
0.0050352	-0.0161816	* 0.74 *	0.0114213	-0.0404915
0.0052714	-0.0169909	* 0.73 *	0.0119535	-0.0425156
0.0055137	-0.0178227	* 0.72 *	0.0124994	-0.0445961
0.0057625	-0.0186784	* 0.71 *	0.0130597	-0.0467361
0.0060181	-0.0195593	* 0.70 *	0.0136350	-0.0489393
0.0062807	-0.0204669	* 0.69 *	0.0142261	-0.0512093
0.0065508	-0.0214028	* 0.68 *	0.0148336	-0.0535500
0.0068285	-0.0223687	* 0.67 *	0.0154582	-0.0559655
0.0071144	-0.0233662	* 0.66 *	0.0161006	-0.0584601
0.0074086	-0.0243971	* 0.65 *	0.0167616	-0.0610384
0.0077117	-0.0254635	* 0.64 *	0.0174419	-0.0637051
0.0080238	-0.0265674	* 0.63 *	0.0181422	-0.0664654
0.0083454	-0.0277109	* 0.62 *	0.0188632	-0.0693249
0.0086769	-0.0288964	* 0.61 *	0.0196058	-0.0722890
0.0090186	-0.0301263	* 0.60 *	0.0203706	-0.0753643
0.0093710	-0.0314033	* 0.59 *	0.0211584	-0.0785569
0.0097344	-0.0327299	* 0.58 *	0.0219696	-0.0818739
0.0101089	-0.0341090	* 0.57 *	0.0228048	-0.0853228
0.0104943	-0.0355439	* 0.56 *	0.0236640	-0.0889118
0.0108902	-0.0370387	* 0.55 *	0.0245476	-0.0926504
0.0112966	-0.0385988	* 0.54 *	0.0254566	-0.0965492
0.0117152	-0.0402308	* 0.53 *	0.0263936	-0.1006194
0.0121510	-0.0419413	* 0.52 *	0.0273631	-0.1048709
0.0126127	-0.0437327	* 0.51 *	0.0283701	-0.1093094

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 37			PHI 38	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0131101	-0.0455989 * 0.50 *		0.0294154	-0.1139348
0.0136451	-0.0475205 * 0.49 *		0.0304873	-0.1187423
0.0141970	-0.0496686 * 0.48 *		0.0315531	-0.1237327
0.0147066	-0.0514226 * 0.47 *		0.0325566	-0.1289326
0.0151727	-0.0534055 * 0.46 *		0.0334339	-0.1344206
0.0149596	-0.0555312 * 0.45 *		0.0341544	-0.1403474
0.0145220	-0.0612825 * 0.43 *		0.0355730	-0.1543561
0.0142593	-0.0656165 * 0.42 *		0.0369488	-0.1627064
0.0149172	-0.0711878 * 0.41 *		0.0394856	-0.1717187
0.0175054	-0.0776359 * 0.40 *		0.0436749	-0.1806602
0.0229860	-0.0838203 * 0.39 *		0.0495788	-0.1882949
0.0317356	-0.0877393 * 0.38 *		0.0564199	-0.1930984
0.0428887	-0.0867473 * 0.37 *		0.0622730	-0.1937689
0.0537943	-0.0783591 * 0.36 *		0.0640678	-0.1899863
0.0598895	-0.0612746 * 0.35 *		0.0580759	-0.1832216
0.0552548	-0.0366785 * 0.34 *		0.0409277	-0.1772846
0.0339531	-0.0092030 * 0.33 *		0.0110034	-0.1782764
-0.0080227	0.0128665 * 0.32 *		-0.0301738	-0.1937140
-0.0706620	0.0185065 * 0.31 *		-0.0770379	-0.2368386
-0.1483693	-0.0039523 * 0.30 *		-0.1200427	-0.2944221
-0.2295790	-0.0639015 * 0.29 *		-0.1469409	-0.3846477
-0.2979631	-0.1654062 * 0.28 *		-0.1451737	-0.4957497
-0.3352044	-0.3049216 * 0.27 *		-0.1048779	-0.6159853
-0.3248097	-0.4705716 * 0.26 *		-0.0217418	-0.7291749
-0.2566439	-0.6434137 * 0.25 *		0.1011218	-0.8176005
-0.1269355	-0.8005714 * 0.24 *		0.2529038	-0.8656179
0.0545129	-0.9195679 * 0.23 *		0.4166335	-0.8630825
0.2713149	-0.9828171 * 0.22 *		0.5722204	-0.8076945
0.5005068	-0.9811665 * 0.21 *		0.7002804	-0.7056461
0.7174485	-0.9156251 * 0.20 *		0.7858146	-0.5704089
0.9063746	-0.7969089 * 0.19 *		0.8208640	-0.4199917
1.0341301	-0.6430005 * 0.18 *		0.8055651	-0.2733808
1.1123037	-0.4754056 * 0.17 *		0.7474738	-0.1470331
1.1374140	-0.3150455 * 0.16 *		0.6594596	-0.0522084
1.1193266	-0.1787230 * 0.15 *		0.5567864	0.0063569
1.0724611	-0.0768442 * 0.14 *		0.4541177	0.0303123
1.0125484	-0.0126999 * 0.13 *		0.3630935	0.0263290
0.9537002	0.0167894 * 0.12 *		0.2908978	0.0039913
0.9063386	0.0192737 * 0.11 *		0.2399354	-0.0264843
0.8762454	0.0046787 * 0.10 *		0.2084685	-0.0561966
0.8646955	-0.0170253 * 0.09 *		0.1918802	-0.0788394
0.8694063	-0.0375711 * 0.08 *		0.1841719	-0.0911922
0.8859197	-0.0514308 * 0.07 *		0.1793382	-0.0928960
0.9090250	-0.0561172 * 0.06 *		0.1723841	-0.0857230
0.9339187	-0.0518778 * 0.05 *		0.1598856	-0.0726025
0.9569257	-0.0409925 * 0.04 *		0.1401237	-0.0566573
0.9757456	-0.0268992 * 0.03 *		0.1129048	-0.0404413
0.9893027	-0.0133312 * 0.02 *		0.0792143	-0.0254864
0.9973496	-0.0035885 * 0.01 *		0.0408324	-0.0121892
1.0000000	0.0 * 0.0 *		0.0	0.0

EIGENVALUES, β_{NM}, FOR ALPHA=1.0, REYNOLDS NUM=6667

N= 4

M	REAL	IMAGINARY	M	REAL	IMAGINARY
1	-.5900030E 01	-.9880877E-01	61	-.3225758E 01	-.1616312E 01
2	-.5894941E 01	-.1032529E 00	62	-.3227337E 01	-.1617835E 01
3	-.5806466E 01	-.1809469E 00	63	-.3995668E 01	-.1626554E 01
4	-.5811349E 01	-.1842773E 00	64	-.4598898E 01	-.1651413E 01
5	-.5726904E 01	-.2548497E 00	65	-.3804613E 01	-.1656719E 01
6	-.5729099E 01	-.2659864E 00	66	-.3740390E 01	-.1667988E 01
7	-.1063522E 01	-.2912697E 00	67	-.4584576E 01	-.1686630E 01
8	-.1063295E 01	-.2914609E 00	68	-.3592583E 01	-.1689416E 01
9	-.5629761E 01	-.3350917E 00	69	-.2842655E 01	-.1699830E 01
10	-.5647133E 01	-.3477396E 00	70	-.2843000E 01	-.1700572E 01
11	-.5544793E 01	-.3988754E 00	71	-.3537427E 01	-.1731135E 01
12	-.5462280E 01	-.4299019E 00	72	-.3406954E 01	-.1797132E 01
13	-.5566323E 01	-.4301568E 00	73	-.4533077E 01	-.1824700E 01
14	-.5485829E 01	-.5126058E 00	74	-.4574309E 01	-.1864282E 01
15	-.5432301E 01	-.5290772E 00	75	-.3209760E 01	-.1869194E 01
16	-.5406322E 01	-.5956950E 00	76	-.3441930E 01	-.1874260E 01
17	-.5355847E 01	-.6147904E 00	77	-.3208835E 01	-.1875880E 01
18	-.1630160E 01	-.6691680E 00	78	-.4500996E 01	-.1936935E 01
19	-.1629744E 01	-.6694268E 00	79	-.4552182E 01	-.2050545E 01
20	-.5327140E 01	-.6787870E 00	80	-.3362576E 01	-.2104106E 01
21	-.5283554E 01	-.7084455E 00	81	-.4497712E 01	-.2108633E 01
22	-.5248803E 01	-.7624542E 00	82	-.3374149E 01	-.2148890E 01
23	-.8419903E 00	-.7676445E 00	83	-.4519310E 01	-.2227623E 01
24	-.8422077E 00	-.7676728E 00	84	-.4477377E 01	-.2253588E 01
25	-.5205322E 01	-.7915562E 00	85	-.3385756E 01	-.2383344E 01
26	-.5170819E 01	-.8460871E 00	86	-.4497697E 01	-.2386741E 01
27	-.5130746E 01	-.8809667E 00	87	-.4499957E 01	-.2422117E 01
28	-.5093590E 01	-.9302155E 00	88	-.3625952E 01	-.2478929E 01
29	-.2096133E 01	-.9640130E 00	89	-.3434537E 01	-.2481154E 01
30	-.5053187E 01	-.9641200E 00	90	-.4499066E 01	-.2557808E 01
31	-.2095498E 01	-.9642821E 00	91	-.3616206E 01	-.2591372E 01
32	-.5016753E 01	-.1014281E 01	92	-.4507472E 01	-.2619884E 01
33	-.4978433E 01	-.1052014E 01	93	-.4500692E 01	-.2747710E 01
34	-.1481471E 01	-.1061666E 01	94	-.3417801E 01	-.2750437E 01
35	-.1481795E 01	-.1061799E 01	95	-.3452605E 01	-.2803685E 01
36	-.4940621E 01	-.1098778E 01	96	-.4506042E 01	-.2824034E 01
37	-.4901937E 01	-.1135457E 01	97	-.4499366E 01	-.2947387E 01
38	-.4864916E 01	-.1183148E 01	98	-.4074103E 01	-.2953759E 01
39	-.2506715E 01	-.1211624E 01	99	-.4047911E 01	-.3003804E 01
40	-.2505825E 01	-.1211825E 01	100	-.4504314E 01	-.3029138E 01
41	-.4827759E 01	-.1222727E 01	101	-.3421257E 01	-.3068723E 01
42	-.4789968E 01	-.1268296E 01	102	-.3418661E 01	-.3073683E 01
43	-.1994972E 01	-.1303609E 01	103	-.4498541E 01	-.3147429E 01
44	-.1995362E 01	-.1303903E 01	104	-.4507510E 01	-.3227841E 01
45	-.4751589E 01	-.1306170E 01	105	-.4504362E 01	-.3339862E 01
46	-.4715337E 01	-.1350375E 01	106	-.3407121E 01	-.3361652E 01
47	-.4683608E 01	-.1392805E 01	107	-.3378473E 01	-.3372889E 01
48	-.2880457E 01	-.1426611E 01	108	-.4515895E 01	-.3421744E 01
49	-.2879290E 01	-.1426639E 01	109	-.4519864E 01	-.3531919E 01
50	-.4648264E 01	-.1457300E 01	110	-.4525925E 01	-.3616260E 01
51	-.4575598E 01	-.1461883E 01	111	-.3383060E 01	-.3670174E 01
52	-.4560337E 01	-.1467836E 01	112	-.3357380E 01	-.3685450E 01
53	-.4380445E 01	-.1508777E 01	113	-.4002056E 01	-.3728355E 01
54	-.2440784E 01	-.1513480E 01	114	-.4538409E 01	-.3728741E 01
55	-.2441181E 01	-.1513978E 01	115	-.4010910E 01	-.3806795E 01
56	-.4354459E 01	-.1521123E 01	116	-.4537074E 01	-.3809628E 01
57	-.4605687E 01	-.1524600E 01	117	-.4554953E 01	-.3923862E 01
58	-.4172170E 01	-.1555880E 01	118	-.3415237E 01	-.3992761E 01
59	-.4167846E 01	-.1579837E 01	119	-.3341056E 01	-.3995105E 01
60	-.3958152E 01	-.1606134E 01	120	-.4554213E 01	-.4000247E 01

EIGENVALUES, BETA ,FOR ALPHA=1.0, REYNOLDS NUM=6667
NM

N= 4
CONTINUED

M	REAL	IMAGINARY
E121	-.4568451E 01	-.4109653E 01
E122	-.3434855E 01	-.4124957E 01
0123	-.4577634E 01	-.4192697E 01
E124	-.3337051E 01	-.4221416E 01
0125	-.3315409E 01	-.4225498E 01
0126	-.3487780E 01	-.4232212E 01
E127	-.3616427E 01	-.4269134E 01
E128	-.4585880E 01	-.4281736E 01
0129	-.3683059E 01	-.4284341E 01
0130	-.3150229E 01	-.4297814E 01
E131	-.3150629E 01	-.4298760E 01
E132	-.3835448E 01	-.4330647E 01
0133	-.3894167E 01	-.4332720E 01
0134	-.4247290E 01	-.4358096E 01
0135	-.4107655E 01	-.4359942E 01
E136	-.4036086E 01	-.4380681E 01
0137	-.4606466E 01	-.4384444E 01
0138	-.2971003E 01	-.4390269E 01
E139	-.2970915E 01	-.4390305E 01
E140	-.4227835E 01	-.4436546E 01
E141	-.4614053E 01	-.4449841E 01
0142	-.4393596E 01	-.4459149E 01
E143	-.2783675E 01	-.4487546E 01
0144	-.2783676E 01	-.4487554E 01
E145	-.4425030E 01	-.4490749E 01
0146	-.4582170E 01	-.4532114E 01
E147	-.4616461E 01	-.4550132E 01
0148	-.4669783E 01	-.4569733E 01
0149	-.2588223E 01	-.4591007E 01
0150	-.2588222E 01	-.4591007E 01

M	REAL	IMAGINARY
*E151	-.4704079E 01	-.4619461E 01
*0152	-.4739713E 01	-.4665C85E 01
*0153	-.2383013E 01	-.4701595E 01
*0154	-.2383011E 01	-.4701595E 01
*E155	-.4777122E 01	-.4706396E 01
*C156	-.4815001E 01	-.4748692E 01
*E157	-.4853002E 01	-.4791544E 01
*0158	-.2165948E 01	-.4820571E 01
*0159	-.2165945E 01	-.4820571E 01
*0160	-.4891064E 01	-.4834167E 01
*E161	-.4929283E 01	-.4876736E 01
*0162	-.4967679E 01	-.4919315E 01
*0163	-.1934082E 01	-.4949722E 01
*C164	-.1934078E 01	-.4949722E 01
*E165	-.5006237E 01	-.4961892E 01
*0166	-.5044950E 01	-.5004444E 01
*E167	-.5083824E 01	-.5046993E 01
*0168	-.5122855E 01	-.5089524E 01
*E169	-.1682993E 01	-.5091764E 01
*0170	-.1682997E 01	-.5091765E 01
*E171	-.5162047E 01	-.5132052E 01
*C172	-.5201394E 01	-.5174563E 01
*E173	-.5240903E 01	-.5217072E 01
*E174	-.1405414E 01	-.5251223E 01
*0175	-.1405418E 01	-.5251224E 01
*0176	-.5280564E 01	-.5299565E 01
*E177	-.5320387E 01	-.5302057E 01
*0178	-.5360361E 01	-.5344536E 01
*E179	-.5400496E 01	-.5387C12E 01
*0180	-.5440783E 01	-.5429478E 01
*0181	-.1087387E 01	-.5436862E 01
*C182	-.1087382E 01	-.5436862E 01
*E183	-.5481229E 01	-.5471941E 01
*0184	-.5521825E 01	-.5514395E 01
*E185	-.5562582E 01	-.5556848E 01
*0186	-.5603485E 01	-.5599293E 01
*E187	-.5644551E 01	-.5641736E 01
*0188	-.6927434E 00	-.5671534E 01
*0189	-.6927376E 00	-.5671534E 01
*C190	-.5685761E 01	-.5684174E 01
*E191	-.5727135E 01	-.5726610E 01
*0192	-.5768649E 01	-.5769C43E 01
*E193	-.5810328E 01	-.5811473E 01
*0194	-.5852145E 01	-.5853902E 01
*E195	-.5894131E 01	-.5896327E 01
*C196	-.5936247E 01	-.5938756E 01
*E197	-.5978545E 01	-.5981174E 01
*0198	-.1104244E 00	-.7485805E 01
*E199	-.1103800E 00	-.7485956E 01

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

	PHI 41			PHI 42	
	REAL	IMAGINARY	Y	REAL	IMAGINARY
	0.0	0.0	* 1.00 *	0.0	0.0
	0.0001625	-0.0000349	* 0.99 *	-0.0003680	-0.0000548
	0.0001257	-0.0001157	* 0.98 *	-0.0011346	-0.0009677
	0.0001798	-0.0002012	* 0.97 *	-0.0019322	-0.0013457
	0.0002323	-0.0002855	* 0.96 *	-0.0027181	-0.0017116
	0.0002853	-0.0003698	* 0.95 *	-0.0035043	-0.0020824
	0.0003390	-0.0004548	* 0.94 *	-0.0042968	-0.0024581
	0.0003934	-0.0005406	* 0.93 *	-0.0050975	-0.0028385
	0.0004485	-0.0006274	* 0.92 *	-0.0059075	-0.0032240
	0.0005043	-0.0007154	* 0.91 *	-0.0067285	-0.0036154
	0.0005611	-0.0008047	* 0.90 *	-0.0075619	-0.0040134
	0.0006190	-0.0008955	* 0.89 *	-0.0084093	-0.0044188
	0.0006780	-0.0009879	* 0.88 *	-0.0092724	-0.0048324
	0.0007382	-0.0010822	* 0.87 *	-0.0101528	-0.0052549
	0.0007998	-0.0011786	* 0.86 *	-0.0110522	-0.0056872
	0.0008630	-0.0012771	* 0.85 *	-0.0119724	-0.0061301
	0.0009277	-0.0013781	* 0.84 *	-0.0129152	-0.0065844
	0.0009942	-0.0014816	* 0.83 *	-0.0138825	-0.0070511
	0.0010625	-0.0015880	* 0.82 *	-0.0148761	-0.0075310
	0.0011329	-0.0016974	* 0.81 *	-0.0158982	-0.0080252
	0.0012054	-0.0018101	* 0.80 *	-0.0169507	-0.0085346
	0.0012802	-0.0019263	* 0.79 *	-0.0180359	-0.0090602
	0.0013574	-0.0020462	* 0.78 *	-0.0191560	-0.0096031
	0.0014373	-0.0021700	* 0.77 *	-0.0203133	-0.0101644
	0.0015199	-0.0022982	* 0.76 *	-0.0215103	-0.0107453
	0.0016055	-0.0024308	* 0.75 *	-0.0227495	-0.0113470
	0.0016943	-0.0025682	* 0.74 *	-0.0240336	-0.0119707
	0.0017863	-0.0027107	* 0.73 *	-0.0253653	-0.0126178
	0.0018818	-0.0028586	* 0.72 *	-0.0267476	-0.0132895
	0.0019811	-0.0030123	* 0.71 *	-0.0281836	-0.0139875
	0.0020843	-0.0031721	* 0.70 *	-0.0296764	-0.0147131
	0.0021917	-0.0033383	* 0.69 *	-0.0312296	-0.0154680
	0.0023035	-0.0035113	* 0.68 *	-0.0328465	-0.0162539
	0.0024199	-0.0036915	* 0.67 *	-0.0345311	-0.0170724
	0.0025412	-0.0038794	* 0.66 *	-0.0362872	-0.0179255
	0.0026678	-0.0040755	* 0.65 *	-0.0381190	-0.0188150
	0.0027998	-0.0042801	* 0.64 *	-0.0400311	-0.0197430
	0.0029377	-0.0044937	* 0.63 *	-0.0420281	-0.0207118
	0.0030816	-0.0047171	* 0.62 *	-0.0441149	-0.0217234
	0.0032321	-0.0049505	* 0.61 *	-0.0462969	-0.0227804
	0.0033894	-0.0051948	* 0.60 *	-0.0485796	-0.0238853
	0.0035539	-0.0054505	* 0.59 *	-0.0509692	-0.0250408
	0.0037261	-0.0057184	* 0.58 *	-0.0534718	-0.0262498
	0.0039063	-0.0059991	* 0.57 *	-0.0560944	-0.0275151
	0.0040952	-0.0062933	* 0.56 *	-0.0588442	-0.0288401
	0.0042930	-0.0066021	* 0.55 *	-0.0617289	-0.0302281
	0.0045004	-0.0069262	* 0.54 *	-0.0647569	-0.0316827
	0.0047180	-0.0072666	* 0.53 *	-0.0679370	-0.0332078
	0.0049462	-0.0076244	* 0.52 *	-0.0712790	-0.0348074
	0.0051859	-0.0080006	* 0.51 *	-0.0747930	-0.0364858

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 41			PHI 42	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0054375	-0.0083964 *	0.50 *	-0.0784903	-0.0382477
0.0057920	-0.0088132 *	0.49 *	-0.0823829	-0.0400978
0.0059799	-0.0092524 *	0.48 *	-0.0864838	-0.0420415
0.0062722	-0.0097154 *	0.47 *	-0.0908071	-0.0440844
0.0065798	-0.0102041 *	0.46 *	-0.0953681	-0.0462325
0.0069038	-0.0107201 *	0.45 *	-0.1001835	-0.0484923
0.0072453	-0.0112654 *	0.44 *	-0.1052710	-0.0508704
0.0076054	-0.0118417 *	0.43 *	-0.1106499	-0.0533737
0.0079853	-0.0124510 *	0.42 *	-0.1163417	-0.0560086
0.0083853	-0.0130950 *	0.41 *	-0.1223709	-0.0587811
0.0088080	-0.0137767 *	0.40 *	-0.1287667	-0.0616972
0.0092432	-0.0145007 *	0.39 *	-0.1355647	-0.0647650
0.0096991	-0.0152749 *	0.38 *	-0.1428068	-0.0679978
0.0101746	-0.0161115 *	0.37 *	-0.1505395	-0.0714191
0.0106788	-0.0170259 *	0.36 *	-0.1588061	-0.0750660
0.0112320	-0.0180325 *	0.35 *	-0.1676351	-0.0789881
0.0118682	-0.0191358 *	0.34 *	-0.1770260	-0.0832362
0.0126320	-0.0203175 *	0.33 *	-0.1869383	-0.0878370
0.0135643	-0.0215229 *	0.32 *	-0.1972972	-0.0927558
0.0146777	-0.0226533 *	0.31 *	-0.2080238	-0.0978498
0.0159198	-0.0235732 *	0.30 *	-0.2191013	-0.1028353
0.0171353	-0.0241408 *	0.29 *	-0.2306744	-0.1072848
0.0180388	-0.0242667 *	0.28 *	-0.2431636	-0.1106845
0.0182175	-0.0239972 *	0.27 *	-0.2573658	-0.1125616
0.0171790	-0.0236064 *	0.26 *	-0.2744938	-0.1126837
0.0144541	-0.0236731 *	0.25 *	-0.2961150	-0.1112961
0.0097477	-0.0251132 *	0.24 *	-0.3239599	-0.1093486
0.0031162	-0.0291378 *	0.23 *	-0.3596049	-0.1086374
-0.0048658	-0.0371244 *	0.22 *	-0.4040658	-0.1117977
-0.0129942	-0.0504040 *	0.21 *	-0.4573821	-0.1221012
-0.0194223	-0.0699935 *	0.20 *	-0.5182849	-0.1430541
-0.0217663	-0.0963202 *	0.19 *	-0.5840417	-0.1778396
-0.0173399	-0.1289966 *	0.18 *	-0.6505483	-0.2286958
-0.0034775	-0.1667007 *	0.17 *	-0.7126822	-0.2963446
0.0220936	-0.2071991 *	0.16 *	-0.7648826	-0.3795868
0.0609020	-0.2475238 *	0.15 *	-0.8018656	-0.4751575
0.1134652	-0.2842852 *	0.14 *	-0.8193524	-0.5778791
0.1791549	-0.3140718 *	0.13 *	-0.8146834	-0.6810997
0.2562162	-0.3338773 *	0.12 *	-0.7872064	-0.7773449
0.3419393	-0.3414860 *	0.11 *	-0.7383795	-0.8590789
0.4329458	-0.3357604 *	0.10 *	-0.6715727	-0.9194528
0.5255414	-0.3167939 *	0.09 *	-0.5916106	-0.9529366
0.6160753	-0.2859145 *	0.08 *	-0.5041374	-0.9557539
0.7012517	-0.2455506 *	0.07 *	-0.4149046	-0.9260889
0.7783536	-0.1989865 *	0.06 *	-0.3290865	-0.8640714
0.8453556	-0.1500490 *	0.05 *	-0.2507125	-0.7715834
0.9009268	-0.1027639 *	0.04 *	-0.1822773	-0.6519518
0.9443397	-0.0610212 *	0.03 *	-0.1245641	-0.5095949
0.9753153	-0.0282752 *	0.02 *	-0.0766809	-0.3496830
0.9938411	-0.0072991 *	0.01 *	-0.0362910	-0.1778541
1.0000000	0.0 *	0.0 *	0.0	0.0

EIGENFUNCTIONS, PHI$_{NM}$, FOR ALPHA=1.0, REY NUM=6667

PHI 43			PHI 44	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
0.0001707	-0.0001545	* 0.99 *	0.0003341	0.0002465
0.0003095	-0.0004555	* 0.98 *	0.0010393	0.0008917
0.0004148	-0.0007646	* 0.97 *	0.0017735	0.0012381
0.0005160	-0.0010686	* 0.96 *	0.0024961	0.0015729
0.0006190	-0.0013727	* 0.95 *	0.0032187	0.0019123
0.0007237	-0.0016794	* 0.94 *	0.0039472	0.0022564
0.0008297	-0.0019893	* 0.93 *	0.0046831	0.0026047
0.0009372	-0.0023029	* 0.92 *	0.0054278	0.0029577
0.0010464	-0.0026207	* 0.91 *	0.0061825	0.0033161
0.0011575	-0.0029434	* 0.90 *	0.0069487	0.0036806
0.0012707	-0.0032716	* 0.89 *	0.0077278	0.0040518
0.0013862	-0.0036058	* 0.88 *	0.0085214	0.0044305
0.0015043	-0.0039469	* 0.87 *	0.0093309	0.0048174
0.0016252	-0.0042953	* 0.86 *	0.0101580	0.0052131
0.0017491	-0.0046519	* 0.85 *	0.0110043	0.0056186
0.0018762	-0.0050172	* 0.84 *	0.0118714	0.0060346
0.0020068	-0.0053922	* 0.83 *	0.0127612	0.0064618
0.0021412	-0.0057774	* 0.82 *	0.0136753	0.0069011
0.0022795	-0.0061736	* 0.81 *	0.0146156	0.0073534
0.0024222	-0.0065818	* 0.80 *	0.0155842	0.0078196
0.0025694	-0.0070027	* 0.79 *	0.0165829	0.0083006
0.0027214	-0.0074372	* 0.78 *	0.0176138	0.0087973
0.0028786	-0.0078862	* 0.77 *	0.0186792	0.0093109
0.0030413	-0.0083508	* 0.76 *	0.0197813	0.0098422
0.0032098	-0.0088318	* 0.75 *	0.0209225	0.0103925
0.0033844	-0.0093303	* 0.74 *	0.0221053	0.0109628
0.0035655	-0.0098474	* 0.73 *	0.0233322	0.0115544
0.0037535	-0.0103843	* 0.72 *	0.0246060	0.0121685
0.0039488	-0.0109421	* 0.71 *	0.0259295	0.0128063
0.0041518	-0.0115222	* 0.70 *	0.0273058	0.0134693
0.0043628	-0.0121259	* 0.69 *	0.0287381	0.0141589
0.0045824	-0.0127545	* 0.68 *	0.0302297	0.0148765
0.0048110	-0.0134096	* 0.67 *	0.0317840	0.0156238
0.0050492	-0.0140927	* 0.66 *	0.0334050	0.0164024
0.0052973	-0.0148055	* 0.65 *	0.0350964	0.0172139
0.0055561	-0.0155498	* 0.64 *	0.0368626	0.0180603
0.0058259	-0.0163273	* 0.63 *	0.0387078	0.0189434
0.0061075	-0.0171402	* 0.62 *	0.0406370	0.0198652
0.0064014	-0.0179904	* 0.61 *	0.0426549	0.0208279
0.0067083	-0.0188802	* 0.60 *	0.0447671	0.0218338
0.0070290	-0.0198121	* 0.59 *	0.0469792	0.0228850
0.0073640	-0.0207885	* 0.58 *	0.0492972	0.0239842
0.0077141	-0.0218121	* 0.57 *	0.0517277	0.0251339
0.0080803	-0.0228860	* 0.56 *	0.0542776	0.0263369
0.0084632	-0.0240132	* 0.55 *	0.0569544	0.0275961
0.0088637	-0.0251970	* 0.54 *	0.0597661	0.0289146
0.0092828	-0.0264410	* 0.53 *	0.0627213	0.0302955
0.0097214	-0.0277492	* 0.52 *	0.0658293	0.0317423
0.0101814	-0.0291256	* 0.51 *	0.0691003	0.0332585

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 43			PHI 44	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0106607	-0.0305750 *	0.50 *	0.0725451	0.0348478
0.0111633	-0.0321025 *	0.49 *	0.0761757	0.0365143
0.0116899	-0.0337139 *	0.48 *	0.0800053	0.0382628
0.0122424	-0.0354151 *	0.47 *	0.0840470	0.0400983
0.0128238	-0.0372115 *	0.46 *	0.0883146	0.0420259
0.0134365	-0.0391068 *	0.45 *	0.0928220	0.0440497
0.0140832	-0.0411028 *	0.44 *	0.0975842	0.0461706
0.0147481	-0.0432011 *	0.43 *	0.1026209	0.0483849
0.0154241	-0.0454093 *	0.42 *	0.1079619	0.0506855
0.0160842	-0.0477518 *	0.41 *	0.1136541	0.0530681
0.0167085	-0.0502812 *	0.40 *	0.1197631	0.0555458
0.0173061	-0.0530839 *	0.39 *	0.1263635	0.0581678
0.0179508	-0.0562643 *	0.38 *	0.1335106	0.0610353
0.0188120	-0.0598971 *	0.37 *	0.1411915	0.0642967
0.0201547	-0.0639448 *	0.36 *	0.1492703	0.0681028
0.0222766	-0.0681586 *	0.35 *	0.1574561	0.0725114
0.0253613	-0.0720078 *	0.34 *	0.1653346	0.0773502
0.0292581	-0.0747003 *	0.33 *	0.1725028	0.0820799
0.0332442	-0.0753570 *	0.32 *	0.1788146	0.0857288
0.0358714	-0.0733622 *	0.31 *	0.1847014	0.0869815
0.0350191	-0.0688490 *	0.30 *	0.1914676	0.0844812
0.0282506	-0.0631920 *	0.29 *	0.2014245	0.0773401
0.0134858	-0.0593205 *	0.28 *	0.2177249	0.0657647
-0.0101124	-0.0616567 *	0.27 *	0.2438238	0.0516141
-0.0412602	-0.0755503 *	0.26 *	0.2826021	0.0386692
-0.0759755	-0.1062220 *	0.25 *	0.3353259	0.0324194
-0.1075708	-0.1573989 *	0.24 *	0.4007190	0.0392862
-0.1273642	-0.2299673 *	0.23 *	0.4744573	0.0653670
-0.1260630	-0.3210314 *	0.22 *	0.5493235	0.1149533
-0.0955630	-0.4237069 *	0.21 *	0.6161010	0.1891889
-0.0307531	-0.5278071 *	0.20 *	0.6650802	0.2852428
0.0691271	-0.6213500 *	0.19 *	0.6878625	0.3962662
0.1999386	-0.6925809 *	0.18 *	0.6790439	0.5122092
0.3530670	-0.7320651 *	0.17 *	0.6373727	0.6213503
0.5167429	-0.7343753 *	0.16 *	0.5660982	0.7122084
0.6779546	-0.6990051 *	0.15 *	0.4724368	0.7754114
0.8245243	-0.6303387 *	0.14 *	0.3662902	0.8051261
0.9469076	-0.5367323 *	0.13 *	0.2585239	0.7997721
1.0393648	-0.4289591 *	0.12 *	0.1591904	0.7619330
1.1003475	-0.3183848 *	0.11 *	0.0760586	0.6975608
1.1321049	-0.2152502 *	0.10 *	0.0137082	0.6147159
1.1397133	-0.1273654 *	0.09 *	-0.0267108	0.5221448
1.1298046	-0.0593851 *	0.08 *	-0.0470965	0.4279873
1.1092758	-0.0126941 *	0.07 *	-0.0515575	0.3388210
1.0842535	0.0141931 *	0.06 *	-0.0453435	0.2591445
1.0594130	0.0248838 *	0.05 *	-0.0337701	0.1912856
1.0377874	0.0242002 *	0.04 *	-0.0213259	0.1356398
1.0208807	0.0172766 *	0.03 *	-0.0110790	0.0910985
1.0090971	0.0087795 *	0.02 *	-0.0044301	0.0555259
1.0022411	0.0023092 *	0.01 *	-0.0012014	0.0261769
1.0000000	0.0 *	0.0 *	0.0	0.0

EIGENFUNCTIONS, PHI $_{NM}$, FOR ALPHA=1.0, REY NUM=6667

PHI 45			PHI 46	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0 *	1.00 *	0.0	0.0
0.0002590	-0.0002875 *	0.99 *	-0.0001084	0.0005225
0.0004374	-0.0008178 *	0.98 *	0.0000487	0.0012777
0.0005566	-0.0013555 *	0.97 *	0.0002811	0.0020003
0.0006697	-0.0018832 *	0.96 *	0.0005139	0.0027066
0.0007860	-0.0024115 *	0.95 *	0.0007433	0.0034159
0.0008945	-0.0029443 *	0.94 *	0.0009732	0.0041322
0.0010248	-0.0034828 *	0.93 *	0.0012049	0.0048564
0.0011468	-0.0040277 *	0.92 *	0.0014391	0.0055895
0.0012709	-0.0045801 *	0.91 *	0.0016760	0.0063330
0.0013973	-0.0051411 *	0.90 *	0.0019161	0.0070881
0.0015262	-0.0057116 *	0.89 *	0.0021598	0.0078564
0.0016579	-0.0062927 *	0.88 *	0.0024077	0.0086394
0.0017925	-0.0068857 *	0.87 *	0.0026603	0.0094385
0.0019304	-0.0074917 *	0.86 *	0.0029181	0.0102552
0.0020719	-0.0081119 *	0.85 *	0.0031815	0.0110913
0.0022171	-0.0087474 *	0.84 *	0.0034512	0.0119483
0.0023663	-0.0093997 *	0.83 *	0.0037277	0.0128280
0.0025199	-0.0100699 *	0.82 *	0.0040116	0.0137321
0.0026780	-0.0107595 *	0.81 *	0.0043036	0.0146624
0.0028411	-0.0114699 *	0.80 *	0.0046041	0.0156208
0.0030094	-0.0122025 *	0.79 *	0.0049140	0.0166093
0.0031832	-0.0129589 *	0.78 *	0.0052338	0.0176300
0.0033629	-0.0137408 *	0.77 *	0.0055644	0.0186849
0.0035488	-0.0145497 *	0.76 *	0.0059065	0.0197764
0.0037412	-0.0153874 *	0.75 *	0.0062608	0.0209066
0.0039406	-0.0162558 *	0.74 *	0.0066283	0.0220782
0.0041472	-0.0171567 *	0.73 *	0.0070098	0.0232935
0.0043616	-0.0180922 *	0.72 *	0.0074062	0.0245553
0.0045841	-0.0190645 *	0.71 *	0.0078185	0.0258664
0.0048151	-0.0200756 *	0.70 *	0.0082479	0.0272296
0.0050551	-0.0211280 *	0.69 *	0.0086954	0.0286482
0.0053045	-0.0222242 *	0.68 *	0.0091621	0.0301254
0.0055637	-0.0233667 *	0.67 *	0.0096494	0.0316645
0.0058334	-0.0245584 *	0.66 *	0.0101586	0.0332692
0.0061140	-0.0258021 *	0.65 *	0.0106912	0.0349434
0.0064060	-0.0271010 *	0.64 *	0.0112487	0.0366910
0.0067099	-0.0284583 *	0.63 *	0.0118327	0.0385164
0.0070263	-0.0298776 *	0.62 *	0.0124450	0.0404241
0.0073558	-0.0313625 *	0.61 *	0.0130877	0.0424189
0.0076990	-0.0329170 *	0.60 *	0.0137626	0.0445058
0.0080563	-0.0345454 *	0.59 *	0.0144722	0.0466904
0.0084286	-0.0362522 *	0.58 *	0.0152188	0.0489784
0.0088163	-0.0380421 *	0.57 *	0.0160051	0.0513759
0.0092201	-0.0399205 *	0.56 *	0.0168340	0.0538895
0.0096407	-0.0418926 *	0.55 *	0.0177086	0.0565261
0.0100785	-0.0439645 *	0.54 *	0.0186324	0.0592931
0.0105339	-0.0461423 *	0.53 *	0.0196094	0.0621984
0.0110068	-0.0484333 *	0.52 *	0.0206443	0.0652506
0.0114973	-0.0508459 *	0.51 *	0.0217422	0.0684596

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 45			PHI 46	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0120062	-0.0533962 *	0.50 *	0.0229082	0.0718368
0.0125372	-0.0565772 *	0.49 *	0.0241456	0.0753947
0.0131975	-0.0589160 *	0.48 *	0.0254558	0.0791450
0.0136962	-0.0619078 *	0.47 *	0.0268383	0.0830939
0.0143367	-0.0650422 *	0.46 *	0.0282972	0.0872390
0.0149973	-0.0682990 *	0.45 *	0.0298530	0.0915684
0.0156211	-0.0716675 *	0.44 *	0.0315572	0.0960748
0.0161053	-0.0751874 *	0.43 *	0.0334980	0.1007853
0.0163400	-0.0790026 *	0.42 *	0.0357780	0.1058035
0.0162985	-0.0833942 *	0.41 *	0.0384492	0.1113411
0.0161768	-0.0887399 *	0.40 *	0.0414062	0.1176951
0.0165247	-0.0953461 *	0.39 *	0.0442798	0.1251317
0.0182589	-0.1031425 *	0.38 *	0.0464105	0.1336598
0.0224357	-0.1113195 *	0.37 *	0.0469992	0.1427495
0.0297122	-0.1180923 *	0.36 *	0.0454973	0.1511323
0.0395668	-0.1208376 *	0.35 *	0.0421909	0.1568705
0.0495441	-0.1168082 *	0.34 *	0.0387890	0.1578585
0.0549360	-0.1044323 *	0.33 *	0.0387019	0.1527778
0.0493267	-0.0849078 *	0.32 *	0.0466815	0.1422969
0.0262169	-0.0635083 *	0.31 *	0.0676474	0.1300775
-0.0185108	-0.0498833 *	0.30 *	0.1048350	0.1230437
-0.0838273	-0.0568046 *	0.29 *	0.1577640	0.1304827
-0.1616973	-0.0972769 *	0.28 *	0.2207801	0.1619066
-0.2368911	-0.1805769 *	0.27 *	0.2829165	0.2240936
-0.2891333	-0.3083526 *	0.26 *	0.3294949	0.3181704
-0.2973427	-0.4721419 *	0.25 *	0.3453042	0.4377702
-0.2449653	-0.6533998 *	0.24 *	0.3185921	0.5690978
-0.1248692	-0.8264185 *	0.23 *	0.2446924	0.6931732
0.0577509	-0.9635209 *	0.22 *	0.1281070	0.7898089
0.2854832	-1.0413313 *	0.21 *	-0.0177217	0.8422593
0.5319393	-1.0461168 *	0.20 *	-0.1730005	0.8412092
0.7672753	-0.9769344 *	0.19 *	-0.3158520	0.7869498
0.9644772	-0.8456160 *	0.18 *	-0.4270627	0.6891504
1.0947115	-0.6737462 *	0.17 *	-0.4940090	0.5643719
1.1804228	-0.4875991 *	0.16 *	-0.5127761	0.4321164
1.1955929	-0.3124880 *	0.15 *	-0.4880702	0.3105581
1.1634026	-0.1679885 *	0.14 *	-0.4311837	0.2130769
1.1022310	-0.0650778 *	0.13 *	-0.3567643	0.1463518
1.0311813	-0.0055791 *	0.12 *	-0.2793553	0.1102487
0.9662941	0.0163548 *	0.11 *	-0.2105698	0.0992258
0.9181777	0.0114449 *	0.10 *	-0.1574464	0.1046343
0.8913292	-0.0079167 *	0.09 *	-0.1221254	0.1171868
0.8849092	-0.0304727 *	0.08 *	-0.1026267	0.1289749
0.8943959	-0.0479914 *	0.07 *	-0.0942968	0.1346698
0.9136766	-0.0560669 *	0.06 *	-0.0914397	0.1318277
0.9367206	-0.0539532 *	0.05 *	-0.0887343	0.1204616
0.9588032	-0.0437347 *	0.04 *	-0.0822051	0.1021796
0.9769788	-0.0291874 *	0.03 *	-0.0696836	0.0792229
0.9899486	-0.0146322 *	0.02 *	-0.0508290	0.0536736
0.9975314	-0.0039724 *	0.01 *	-0.0268409	0.0270030
1.0000000	0.0 *	0.0 *	0.0	0.0

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

PHI 47			PHI 48	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
0.3816895	0.1095914	* 0.99 *	-0.0529331	0.0415557
1.3370466	0.0661165	* 0.98 *	-0.1418219	0.1771097
2.5684929	-0.2983702	* 0.97 *	-0.2140201	0.3825113
3.9038447	-0.9410596	* 0.96 *	-0.2582659	0.6297411
5.2798424	-1.7212801	* 0.95 *	-0.2878727	0.8964450
6.6841888	-2.4612722	* 0.94 *	-0.3258263	1.1628962
8.0826693	-2.9896202	* 0.93 *	-0.3923514	1.4074097
9.3906002	-3.1854639	* 0.92 *	-0.4955930	1.6062870
10.4838181	-3.0162821	* 0.91 *	-0.6276070	1.7392206
11.2444935	-2.5494947	* 0.90 *	-0.7673466	1.7967529
11.6126442	-1.9261589	* 0.89 *	-0.8894278	1.7847319
11.6128682	-1.3760780	* 0.88 *	-0.9743445	1.7225008
11.3420467	-0.8109375	* 0.87 *	-1.0150518	1.6355219
10.9276009	-0.4922460	* 0.86 *	-1.0172005	1.5464420
10.4815925	-0.3345287	* 0.85 *	-0.9940571	1.4690351
10.0699081	-0.2839841	* 0.84 *	-0.9597365	1.4071770
9.7148876	-0.2822698	* 0.83 *	-0.9243279	1.3579006
9.4063530	-0.2886295	* 0.82 *	-0.8924561	1.3158045
9.1244345	-0.2851894	* 0.81 *	-0.8645869	1.2763758
8.8538178	-0.2705170	* 0.80 *	-0.8393052	1.2372608
8.5843582	-0.2499812	* 0.79 *	-0.8150994	1.1979342
8.3172989	-0.2288982	* 0.78 *	-0.7911239	1.1587677
8.0535746	-0.2099904	* 0.77 *	-0.7671780	1.1202707
7.7951097	-0.1937386	* 0.76 *	-0.7433877	1.0827551
7.5436098	-0.1796136	* 0.75 *	-0.7199352	1.0463190
7.2976246	-0.1669856	* 0.74 *	-0.6969416	1.0109472
7.0589457	-0.1554556	* 0.73 *	-0.6744599	0.9765990
6.8268852	-0.1448359	* 0.72 *	-0.6525066	0.9432409
6.6013727	-0.1350372	* 0.71 *	-0.6310865	0.9108550
6.3823605	-0.1259949	* 0.70 *	-0.6102028	0.8794272
6.1697931	-0.1176435	* 0.69 *	-0.5898589	0.8489431
5.9636011	-0.1099180	* 0.68 *	-0.5700561	0.8193859
5.7636986	-0.1027583	* 0.67 *	-0.5507933	0.7907370
5.5699825	-0.0961122	* 0.66 *	-0.5320673	0.7629765
5.3823442	-0.0899336	* 0.65 *	-0.5138727	0.7360840
5.2006636	-0.0841824	* 0.64 *	-0.4962026	0.7100385
5.0248184	-0.0788231	* 0.63 *	-0.4790491	0.6848187
4.8546820	-0.0738237	* 0.62 *	-0.4624034	0.6604034
4.6901217	-0.0691554	* 0.61 *	-0.4462557	0.6367708
4.5310068	-0.0647927	* 0.60 *	-0.4305959	0.6138992
4.3772020	-0.0607122	* 0.59 *	-0.4154130	0.5917673
4.2285738	-0.0568928	* 0.58 *	-0.4006961	0.5703534
4.0849886	-0.0533155	* 0.57 *	-0.3864338	0.5496368
3.9463120	-0.0499628	* 0.56 *	-0.3726144	0.5295960
3.8124123	-0.0468188	* 0.55 *	-0.3592263	0.5102196
3.6831589	-0.0438691	* 0.54 *	-0.3462577	0.4914661
3.5584211	-0.0411002	* 0.53 *	-0.3336968	0.4733244
3.4380732	-0.0384999	* 0.52 *	-0.3215322	0.4557838
3.3219891	-0.0360571	* 0.51 *	-0.3097519	0.4388191

EIGENFUNCTIONS, PHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

PHI 47			PHI 48	
REAL	IMAGINARY	Y	REAL	IMAGINARY
3.2100487	-0.0337614 *	0.50 *	-0.2983445	0.4224111
3.1021299	-0.0316031 *	0.49 *	-0.2872984	0.4065416
2.9981165	-0.0295734 *	0.48 *	-0.2766024	0.3911922
2.8978930	-0.0276642 *	0.47 *	-0.2662455	0.3763452
2.8013496	-0.0258680 *	0.46 *	-0.2562166	0.3619833
2.7083769	-0.0241776 *	0.45 *	-0.2465048	0.3480896
2.6188688	-0.0225865 *	0.44 *	-0.2370998	0.3346474
2.5327234	-0.0210887 *	0.43 *	-0.2279909	0.3216408
2.4498396	-0.0196786 *	0.42 *	-0.2191679	0.3090541
2.3701220	-0.0183508 *	0.41 *	-0.2106212	0.2968718
2.2934761	-0.0171005 *	0.40 *	-0.2023407	0.2850792
2.2198105	-0.0159232 *	0.39 *	-0.1943167	0.2736616
2.1490383	-0.0148145 *	0.38 *	-0.1865402	0.2626049
2.0810738	-0.0137705 *	0.37 *	-0.1790020	0.2518952
2.0158348	-0.0127875 *	0.36 *	-0.1716931	0.2415193
1.9532423	-0.0118620 *	0.35 *	-0.1646045	0.2314638
1.8932190	-0.0109908 *	0.34 *	-0.1577281	0.2217163
1.8356924	-0.0101707 *	0.33 *	-0.1510553	0.2122641
1.7805910	-0.0093991 *	0.32 *	-0.1445780	0.2030953
1.7278461	-0.0086732 *	0.31 *	-0.1382883	0.1941979
1.6773911	-0.0079905 *	0.30 *	-0.1321784	0.1855606
1.6291656	-0.0073487 *	0.29 *	-0.1262407	0.1771722
1.5831060	-0.0067456 *	0.28 *	-0.1204678	0.1690218
1.5391569	-0.0061793 *	0.27 *	-0.1148524	0.1610987
1.4972601	-0.0056477 *	0.26 *	-0.1093875	0.1533925
1.4573650	-0.0051491 *	0.25 *	-0.1040662	0.1458932
1.4194193	-0.0046818 *	0.24 *	-0.0988817	0.1385909
1.3833761	-0.0042443 *	0.23 *	-0.0938272	0.1314757
1.3491869	-0.0038351 *	0.22 *	-0.0888967	0.1245385
1.3168097	-0.0034529 *	0.21 *	-0.0840834	0.1177701
1.2862034	-0.0030963 *	0.20 *	-0.0793812	0.1111613
1.2573261	-0.0027642 *	0.19 *	-0.0747840	0.1047032
1.2301426	-0.0024555 *	0.18 *	-0.0702860	0.0983874
1.2046175	-0.0021693 *	0.17 *	-0.0658811	0.0922052
1.1807175	-0.0019044 *	0.16 *	-0.0615638	0.0861484
1.1584110	-0.0016601 *	0.15 *	-0.0573282	0.0802090
1.1376696	-0.0014356 *	0.14 *	-0.0531688	0.0743787
1.1184664	-0.0012300 *	0.13 *	-0.0490802	0.0686498
1.1007757	-0.0010429 *	0.12 *	-0.0450570	0.0630144
1.0845747	-0.0008734 *	0.11 *	-0.0410938	0.0574652
1.0698433	-0.0007211 *	0.10 *	-0.0371854	0.0519942
1.0565605	-0.0005854 *	0.09 *	-0.0333266	0.0465943
1.0447102	-0.0004660 *	0.08 *	-0.0295124	0.0412580
1.0342760	-0.0003623 *	0.07 *	-0.0257375	0.0359781
1.0252447	-0.0002741 *	0.06 *	-0.0219970	0.0307473
1.0176048	-0.0002010 *	0.05 *	-0.0182859	0.0255586
1.0113459	-0.0001431 *	0.04 *	-0.0145993	0.0204048
1.0064583	-0.0000995 *	0.03 *	-0.0109322	0.0152789
1.0029345	-0.0000719 *	0.02 *	-0.0072797	0.0101739
1.0007687	-0.0000454 *	0.01 *	-0.0036373	0.0050828
1.0000000	0.0 *	0.0 *	0.0	0.0

Plots of the Eigenfunctions, Φ_{nm},

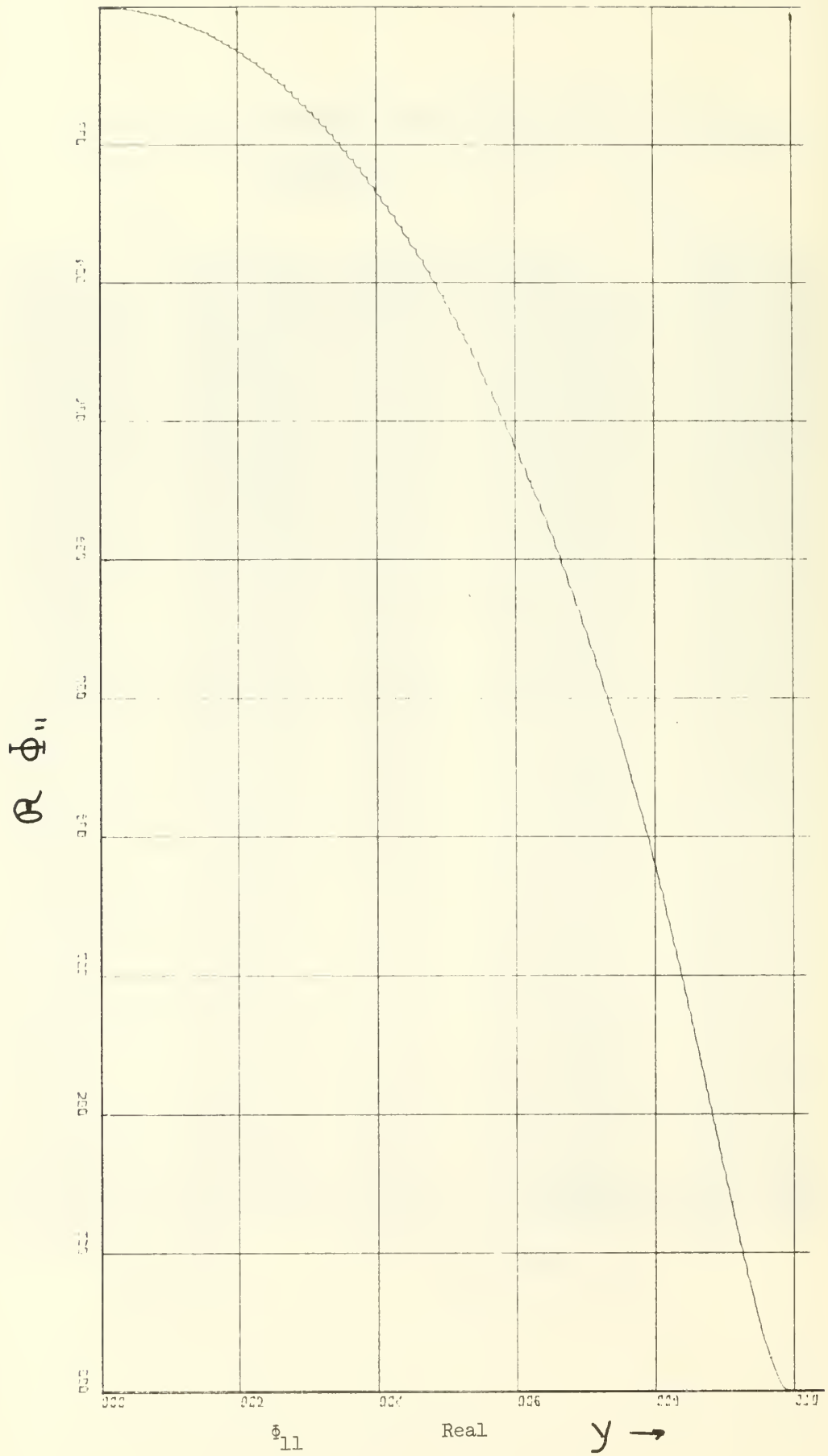
for $\alpha = 1.0$, $R_e = 6667$

$n = 1,2,3,4$

$m = 1,2,3,4,5,6,7,8$

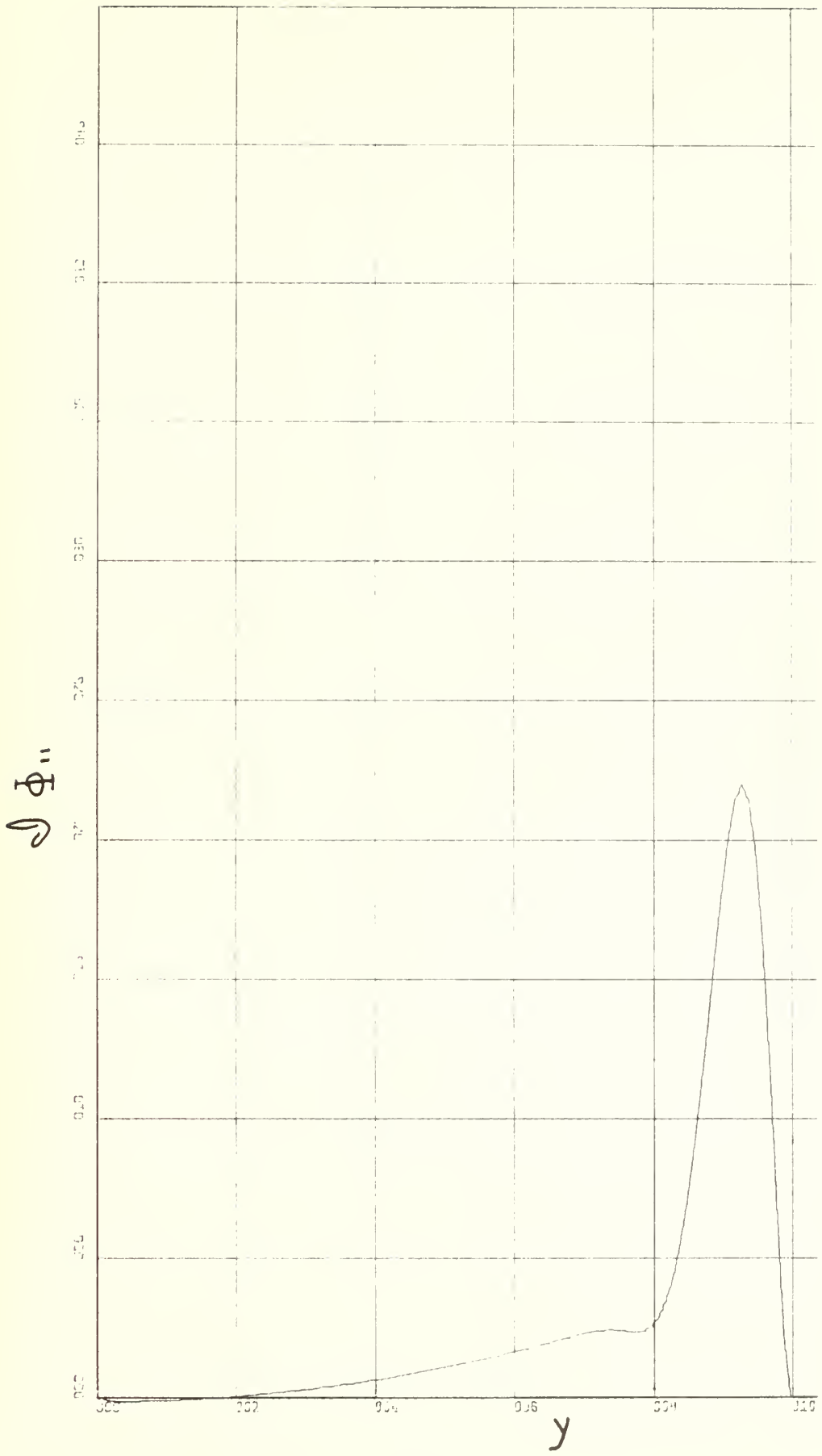
Note: Unless otherwise indicated the graphs are plotted with the following scales:

Horizontal Scale	.2/division
Vertical Scale	.2/division



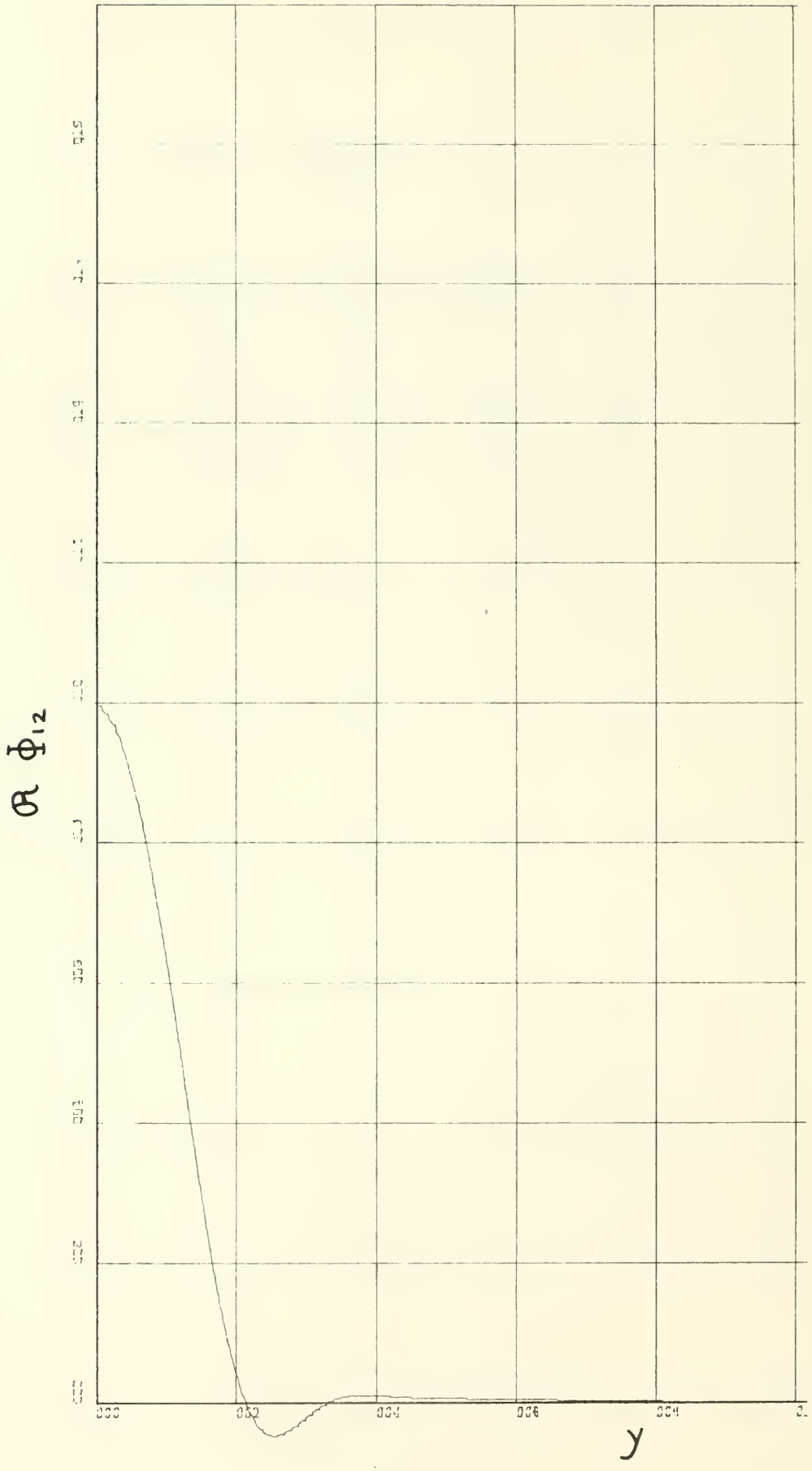
Φ_{11} Real

Vertical Scale .1/division

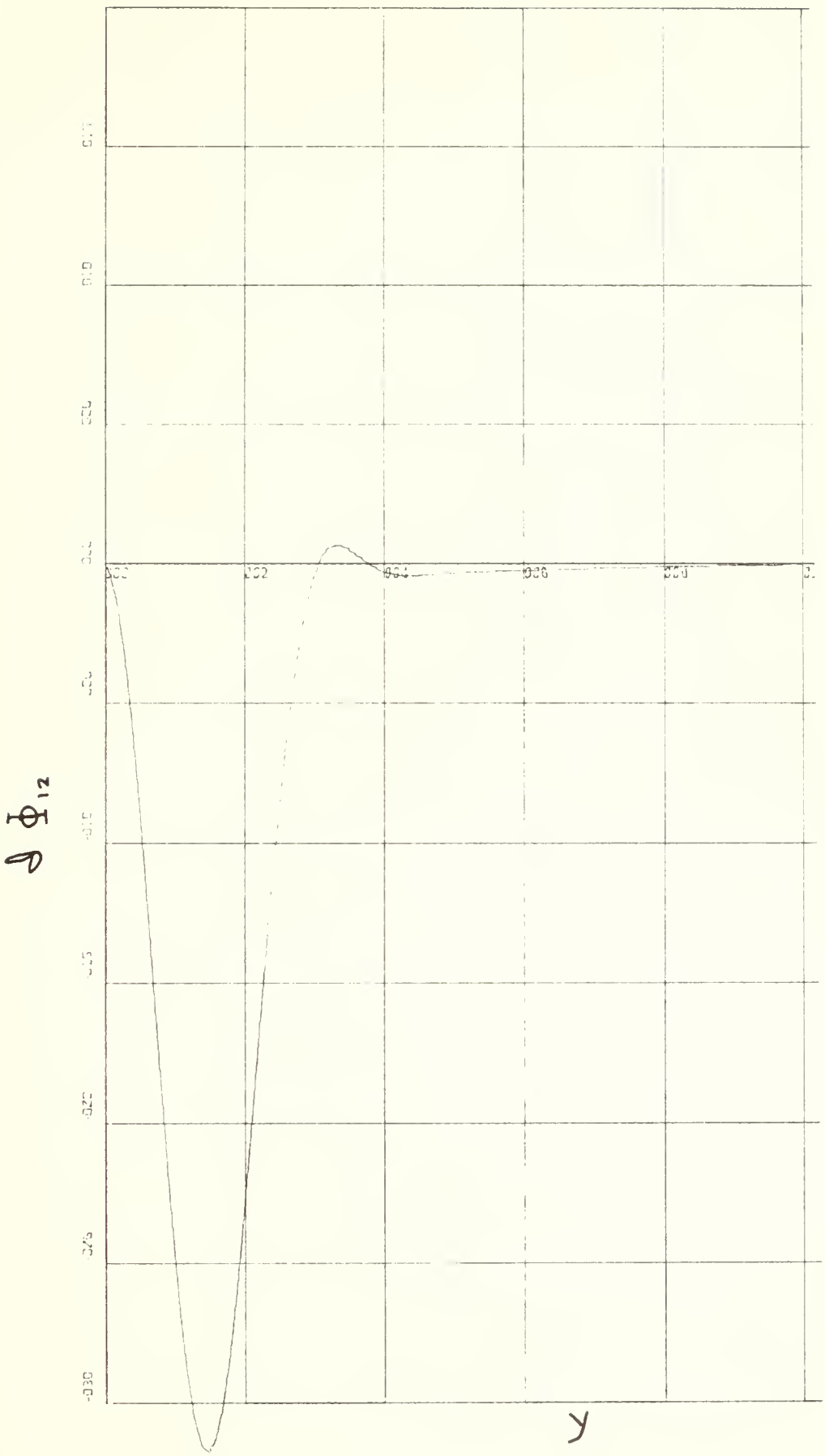


Φ_{11} Imaginary

Vertical Scale .005/division

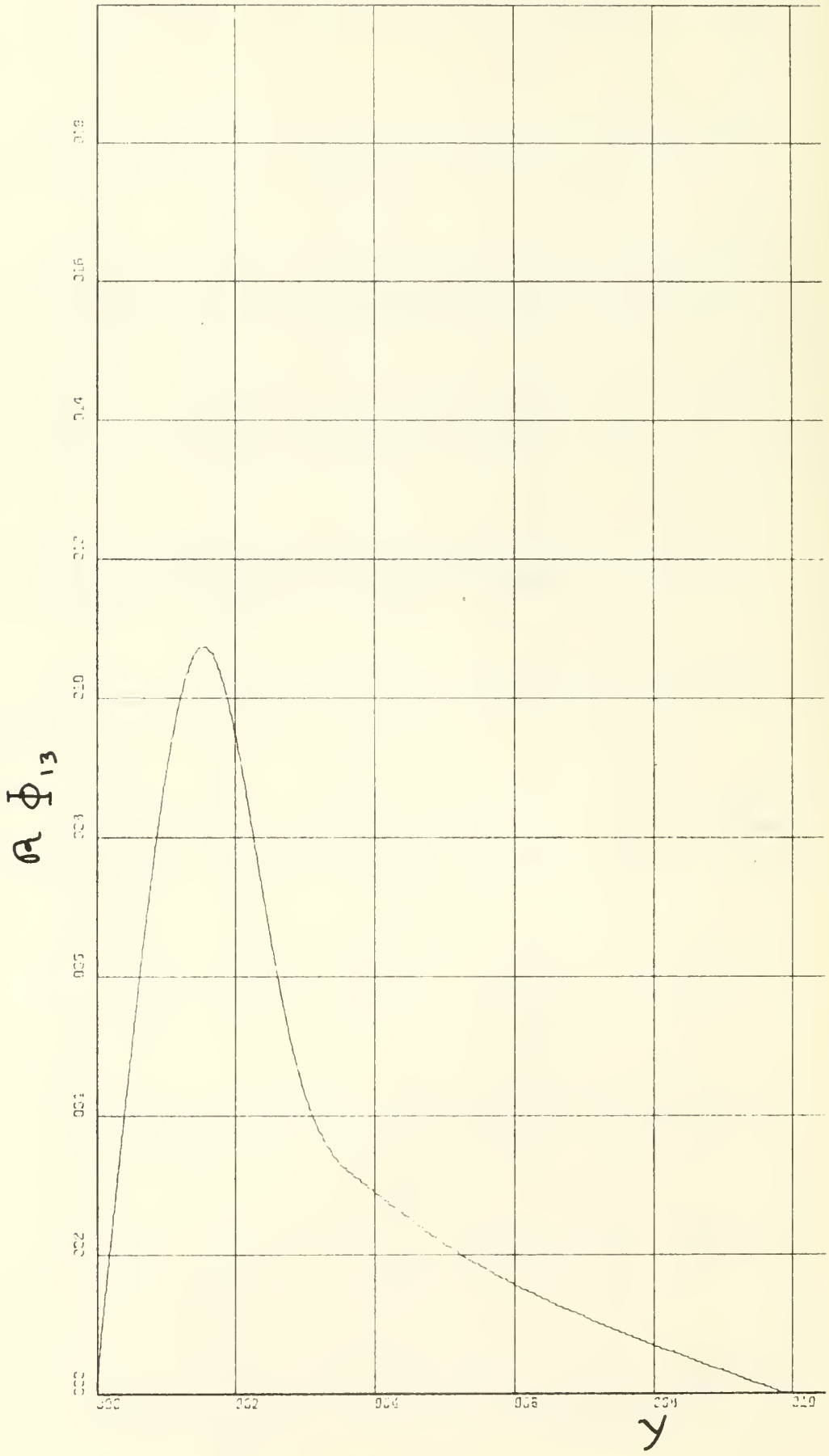


Φ_{12} Real

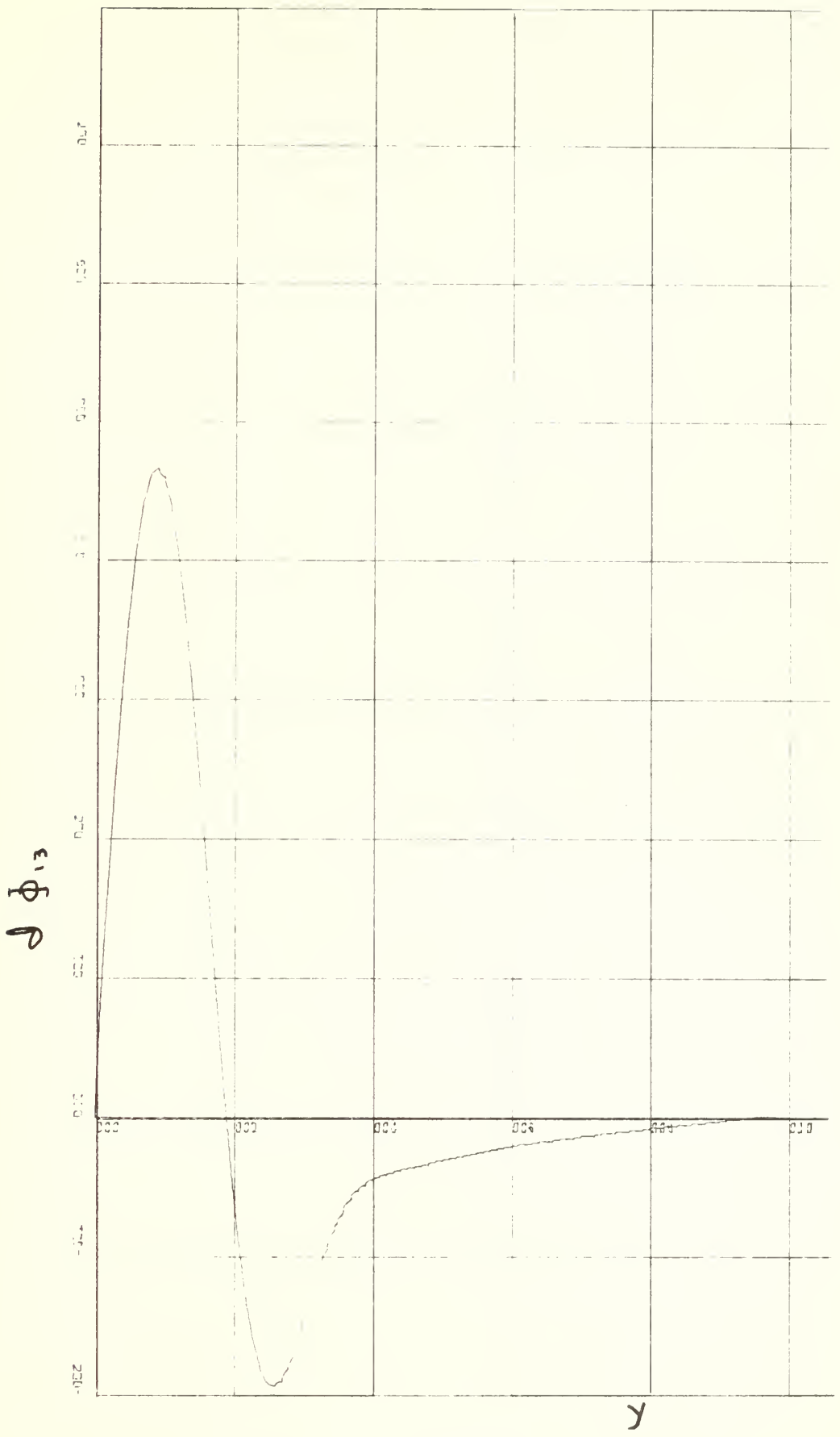


ϕ_{12} Imaginary

Vertical Scale .05/division

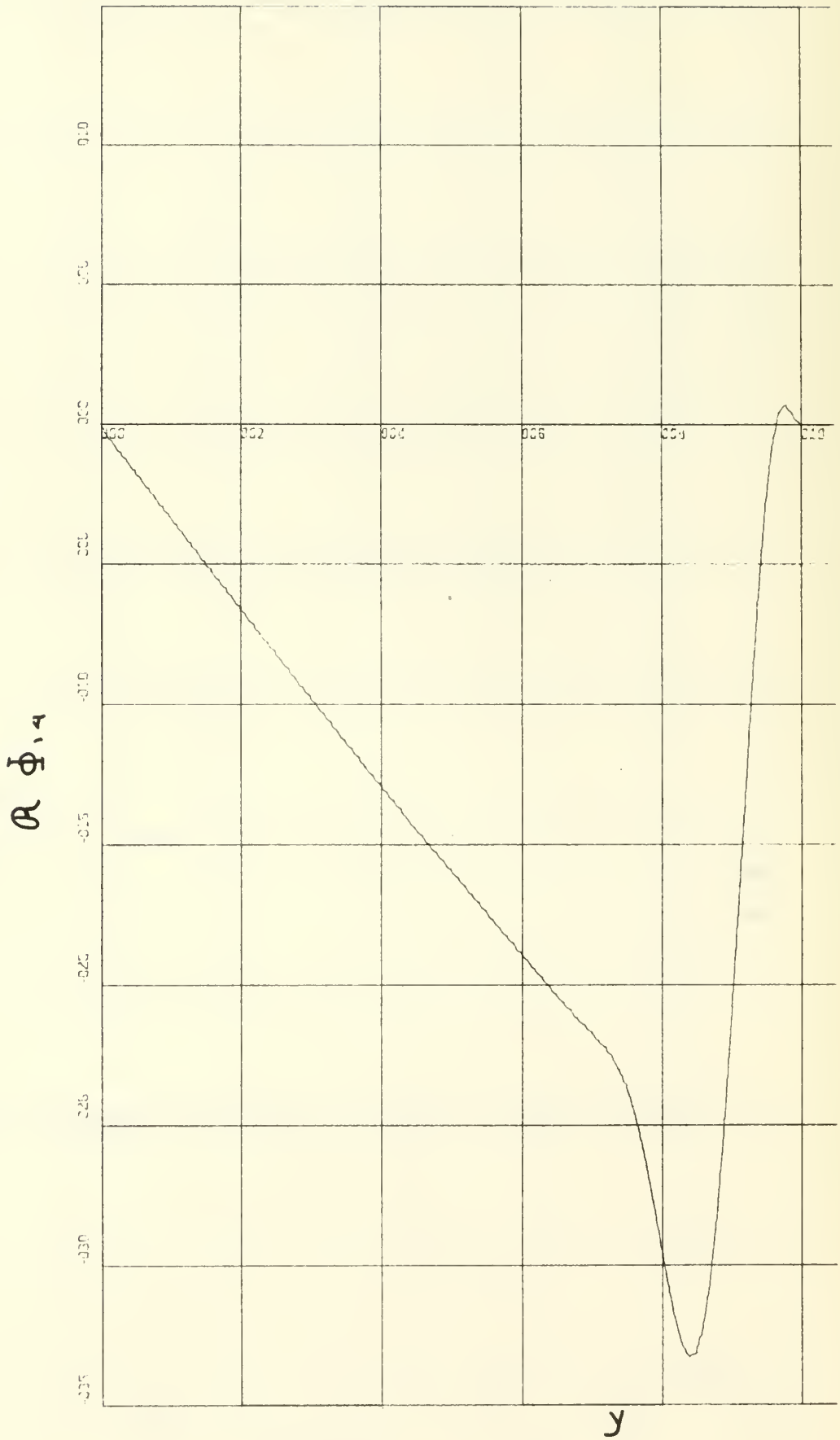


Φ_{13} Real



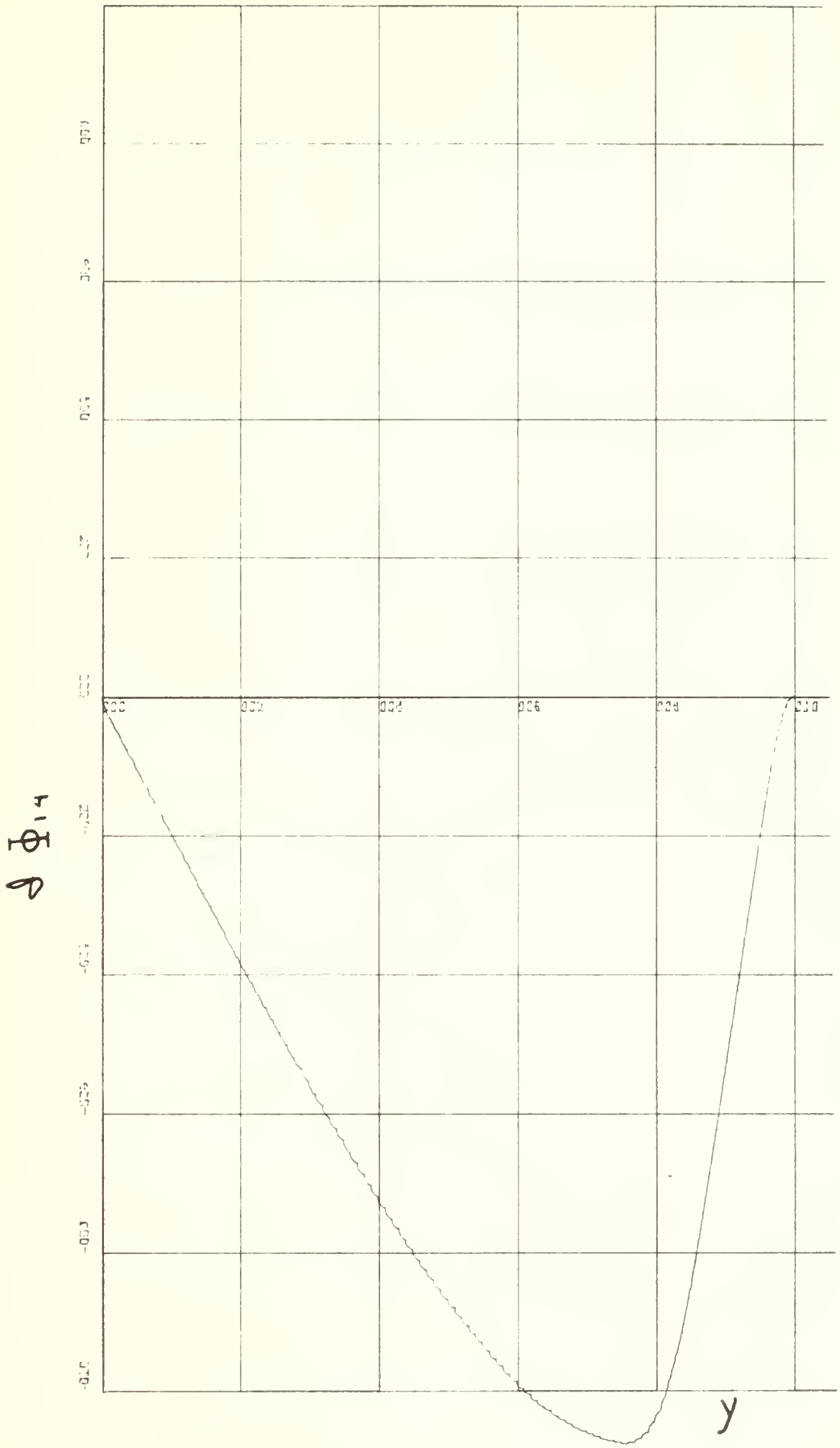
Φ_{13}
Vertical Scale

Imaginary
.1/division

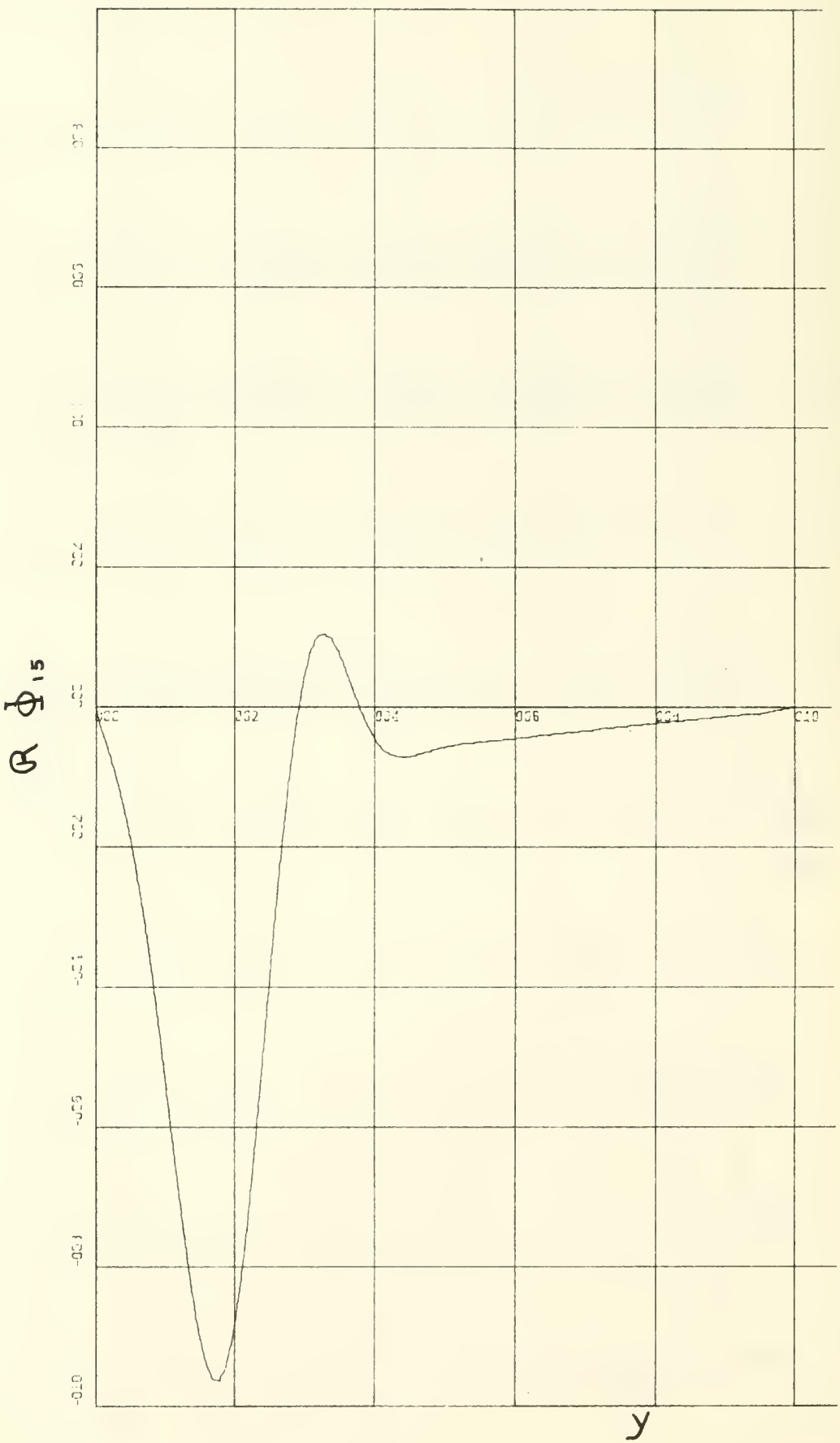


Φ_{14} Real

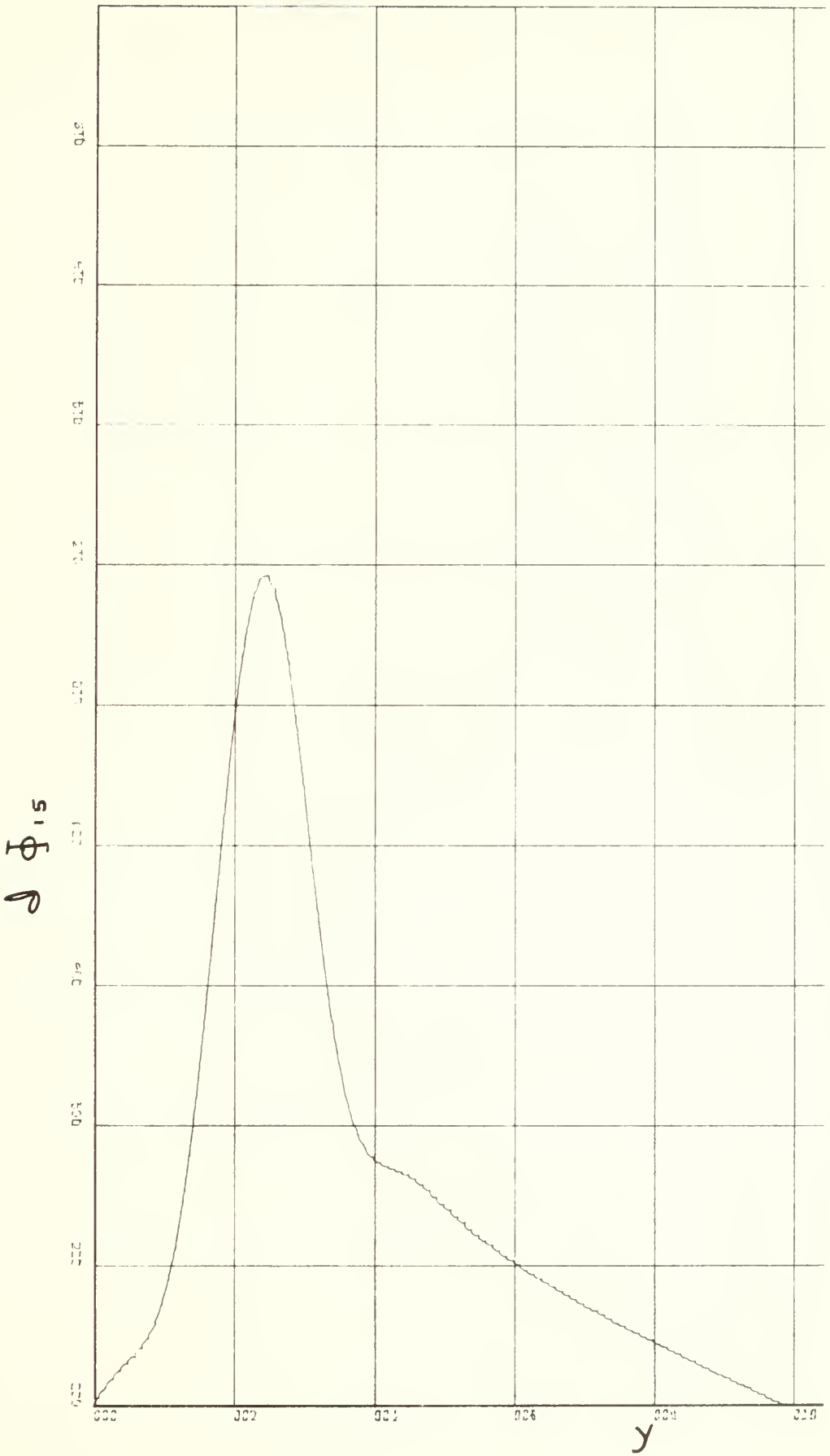
Vertical Scale .05/division



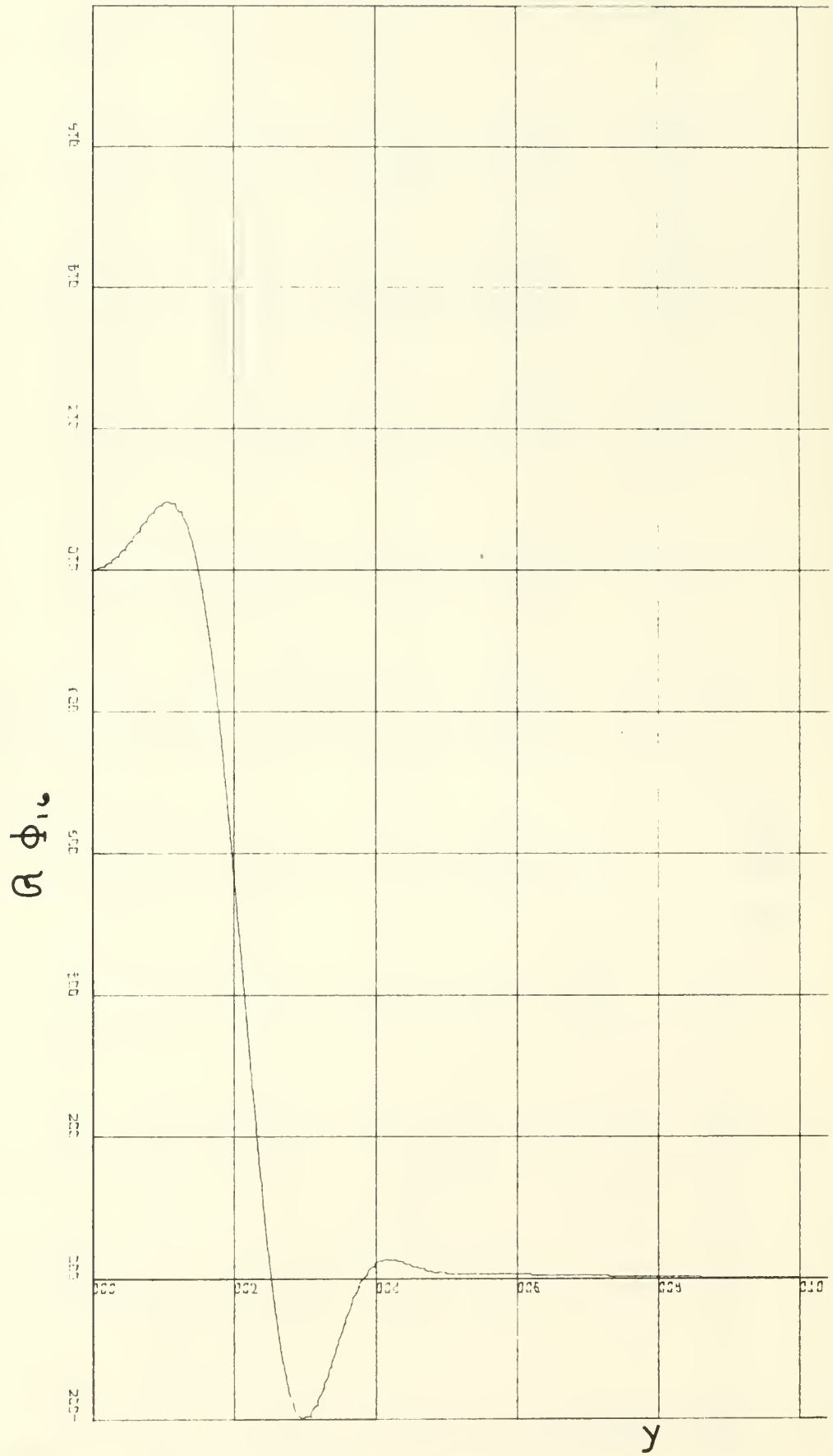
Imaginary



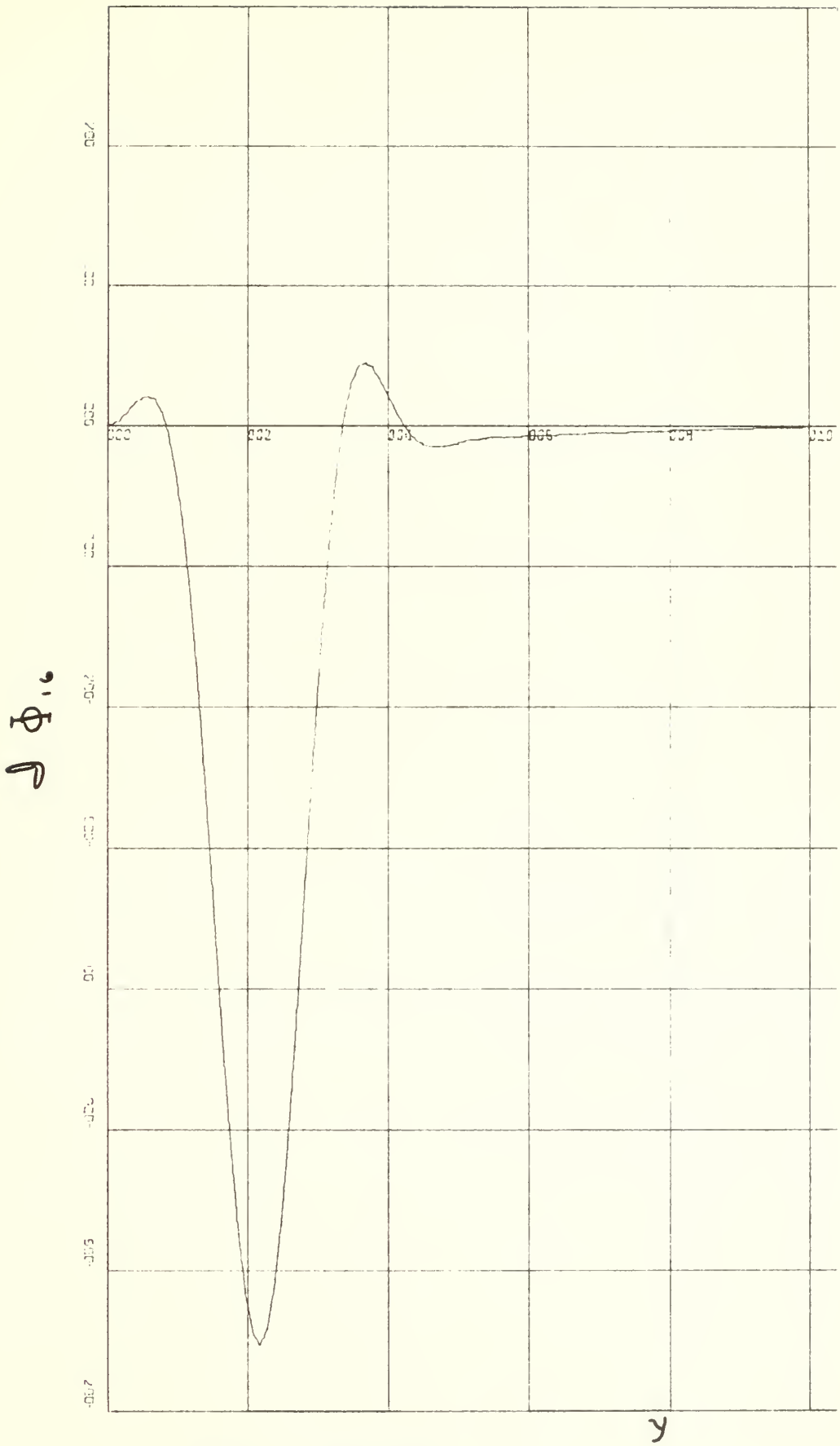
Φ_{15} Real



Φ_{15} Imaginary

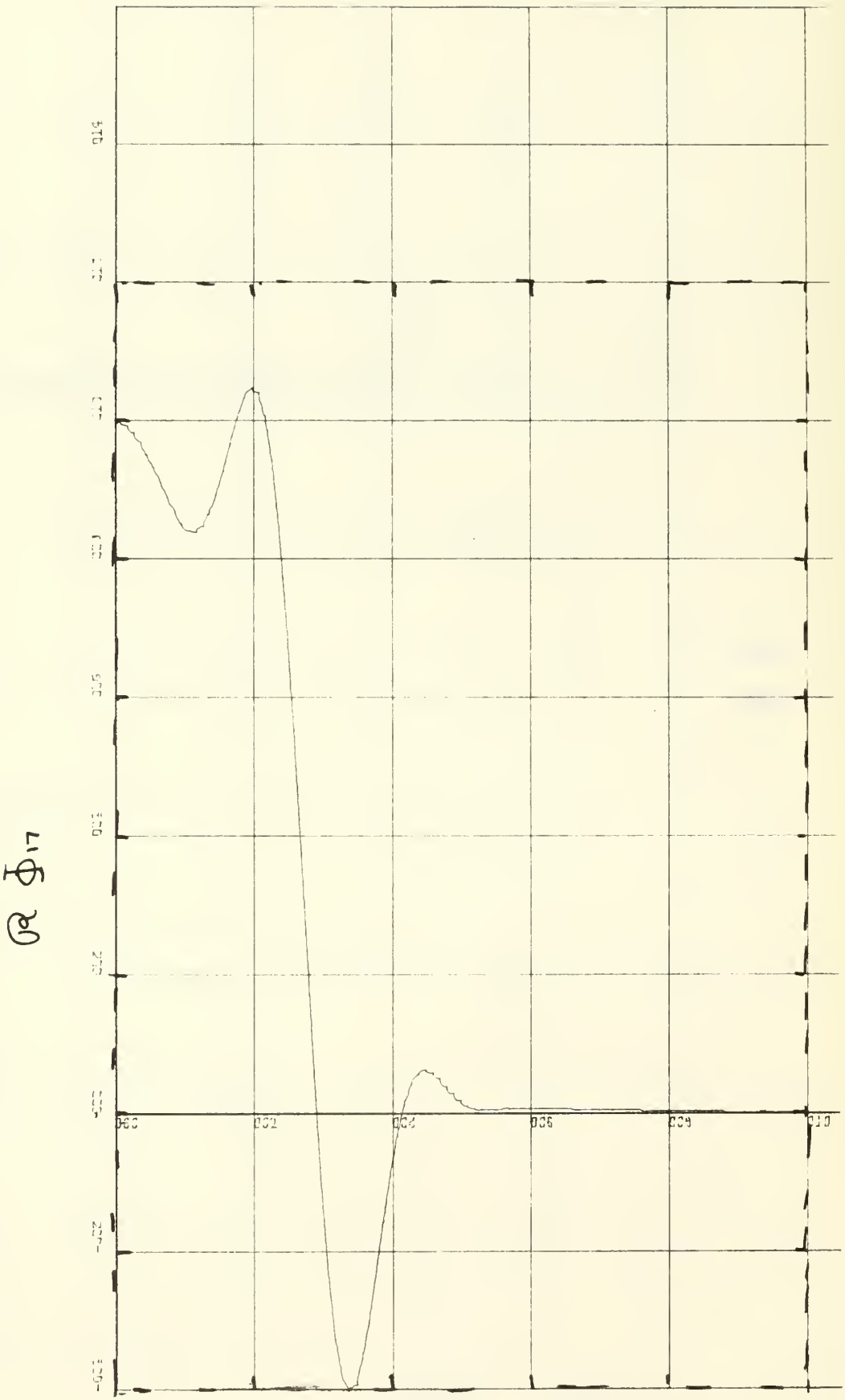


Φ_{16} Real

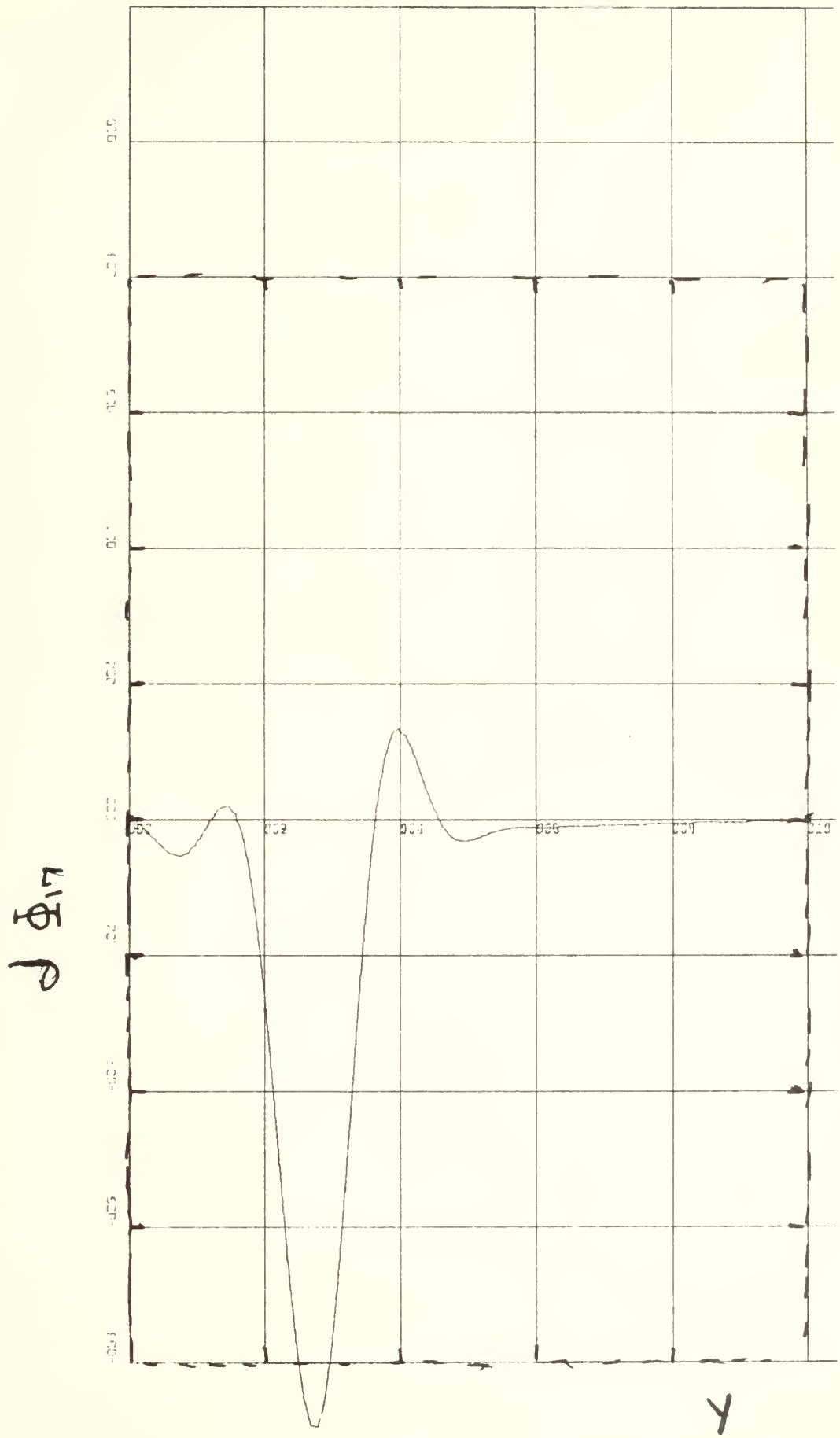


Φ_{16} Imaginary

Vertical Scale .1/division

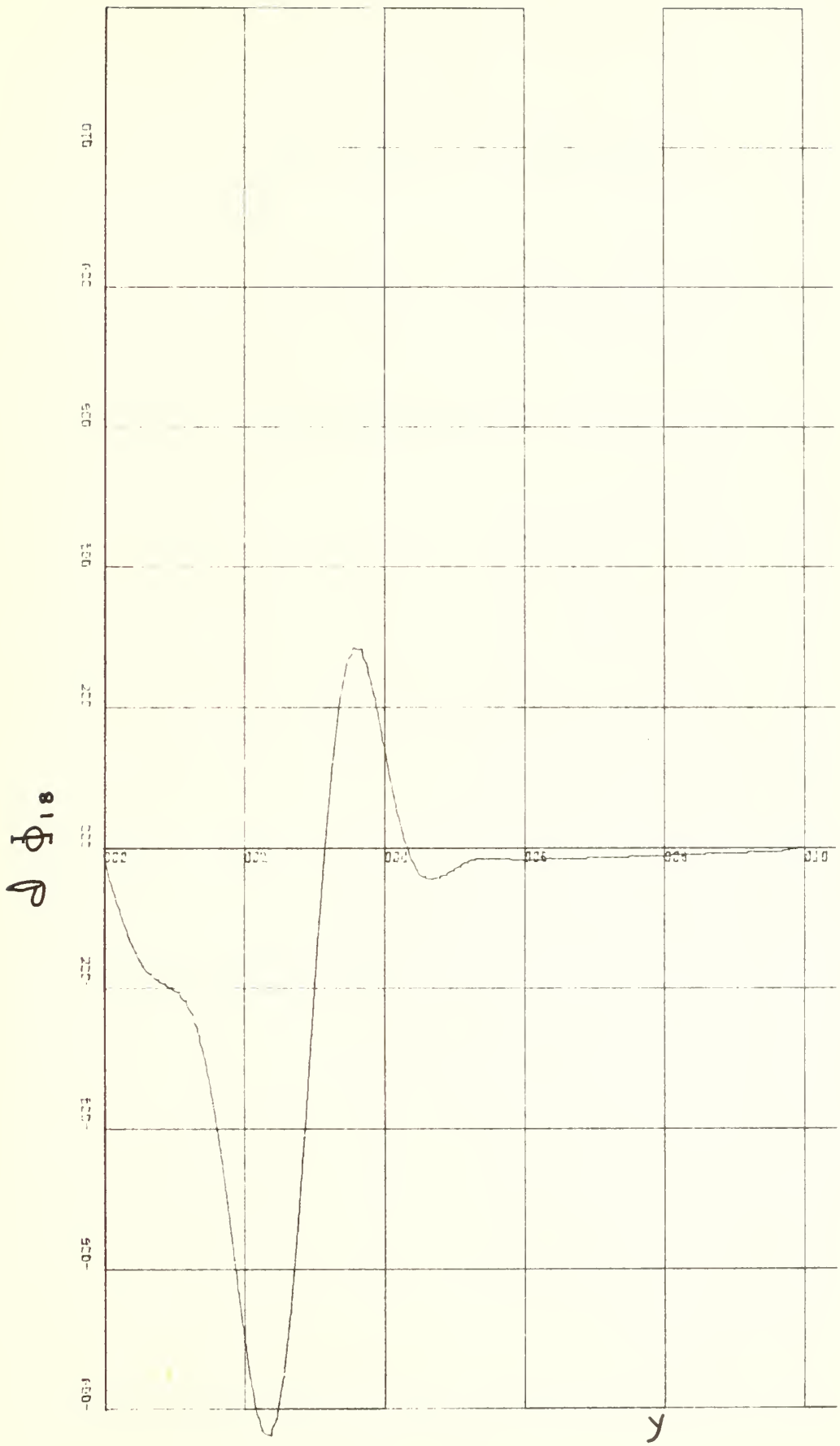


Φ_{17} Real



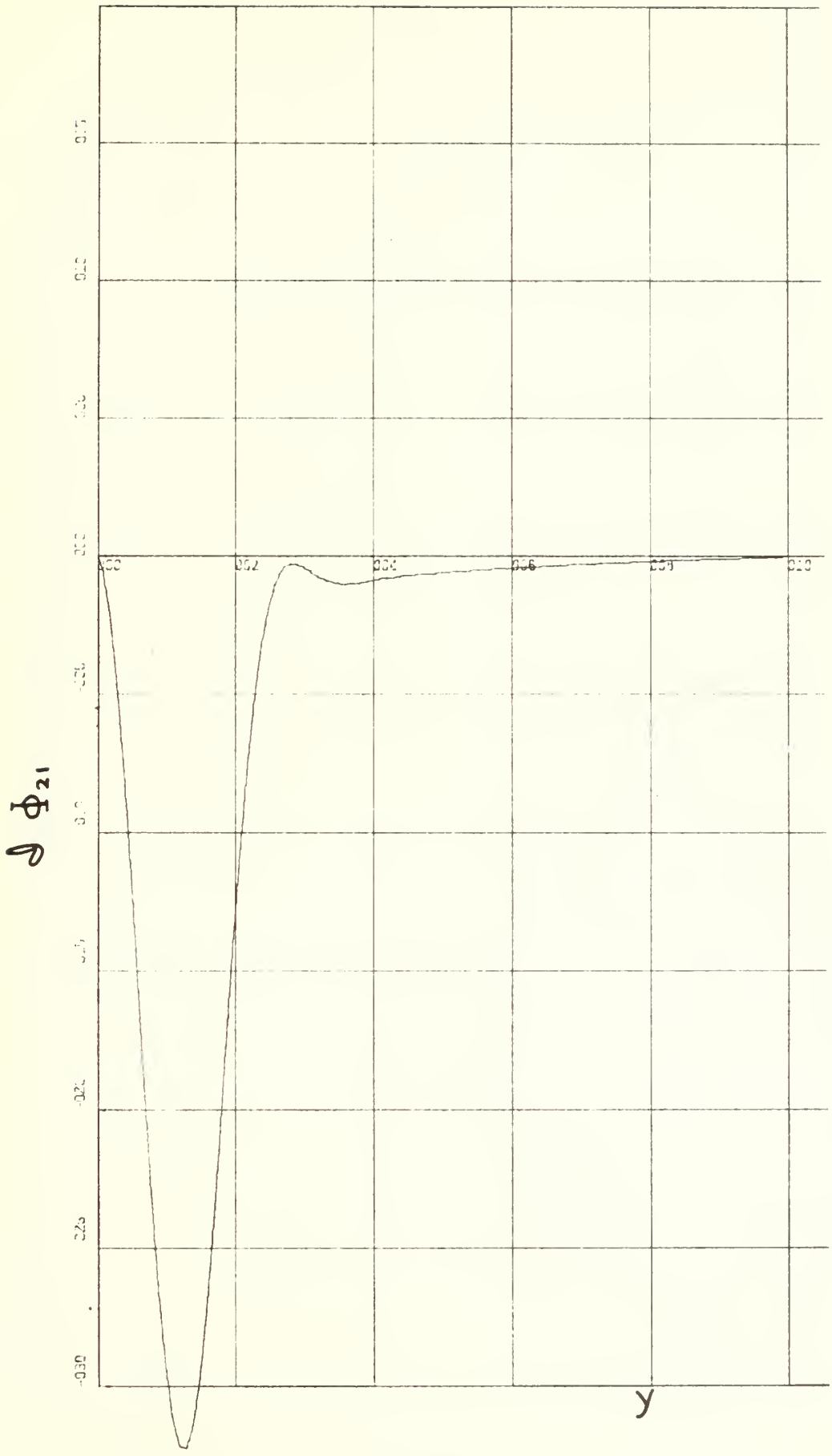
Φ_{17} Imaginary

Φ_{18} Real



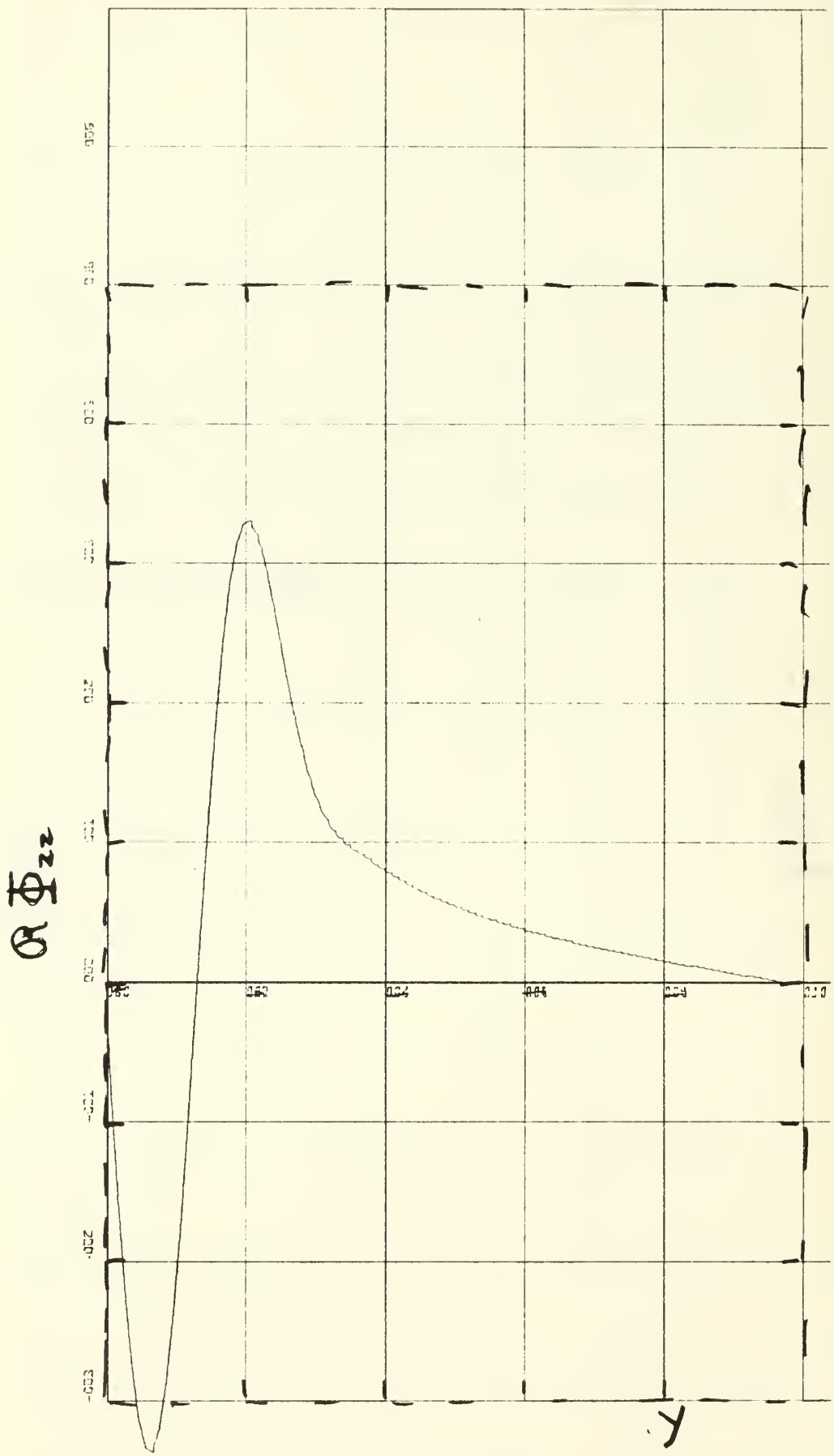
Φ_{18} Imaginary

Φ_{21}
y
Φ_{21} Real



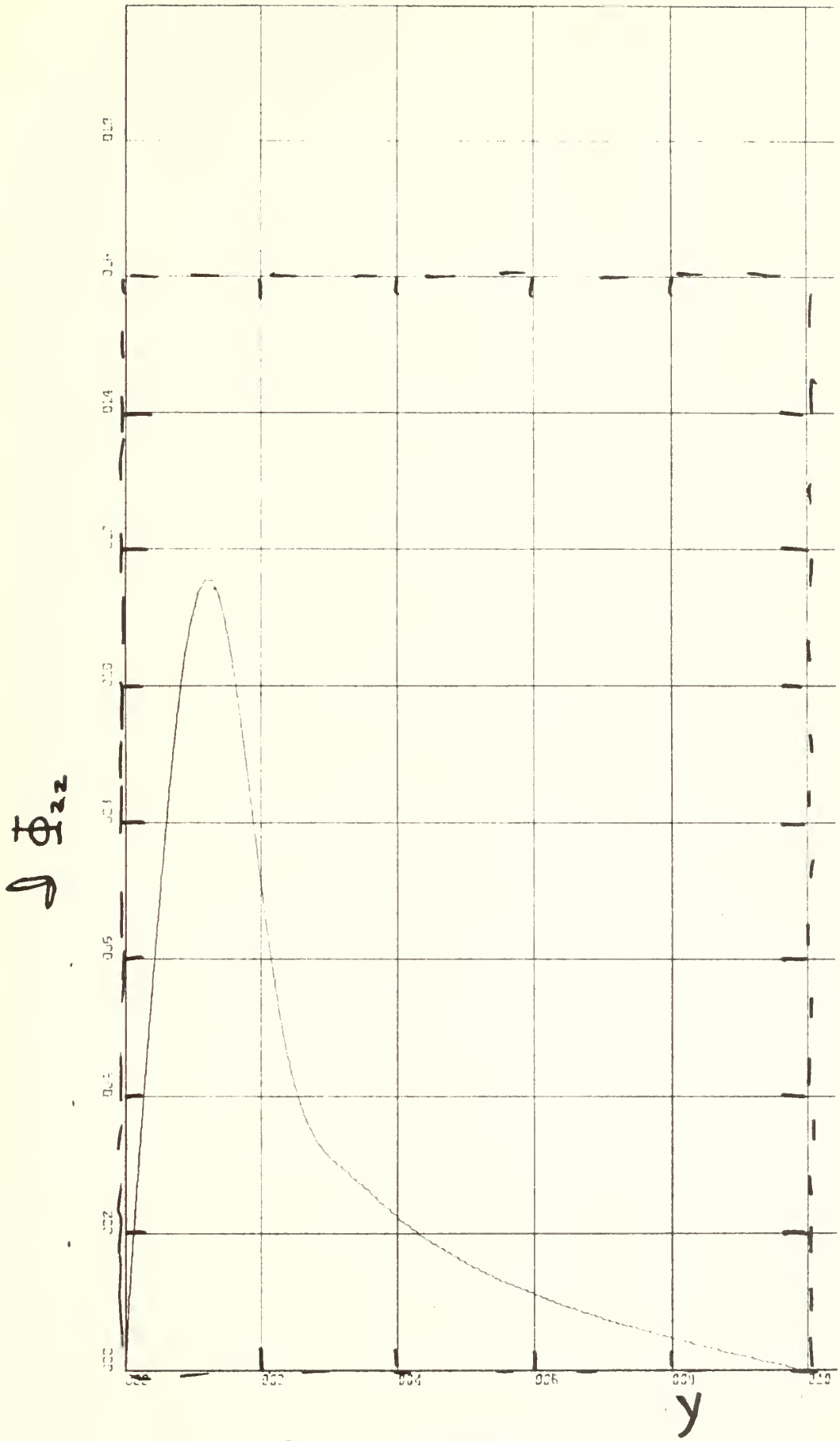
Φ_{21} Imaginary

Vertical Scale .05/division

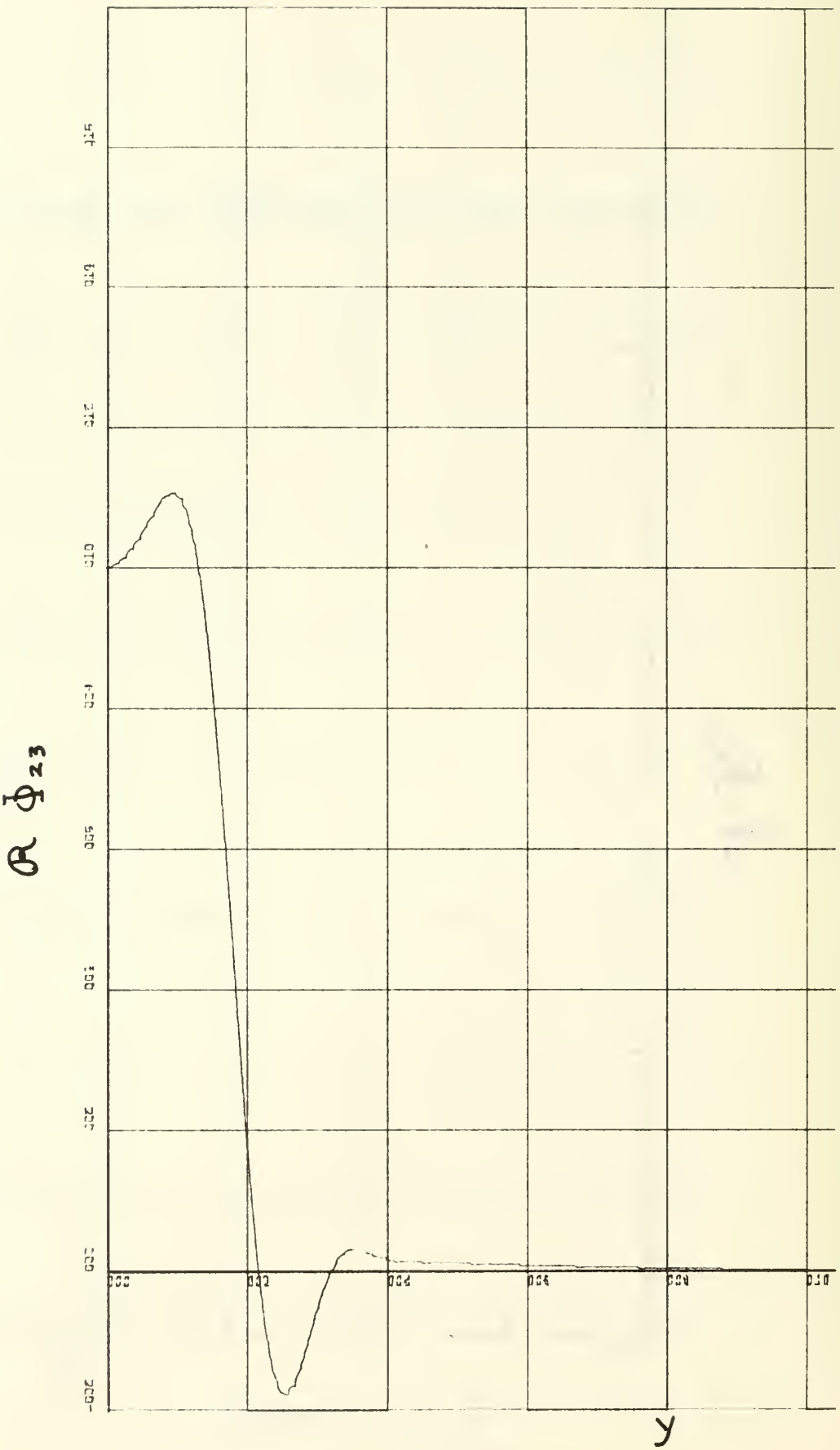


Φ_{22} Real

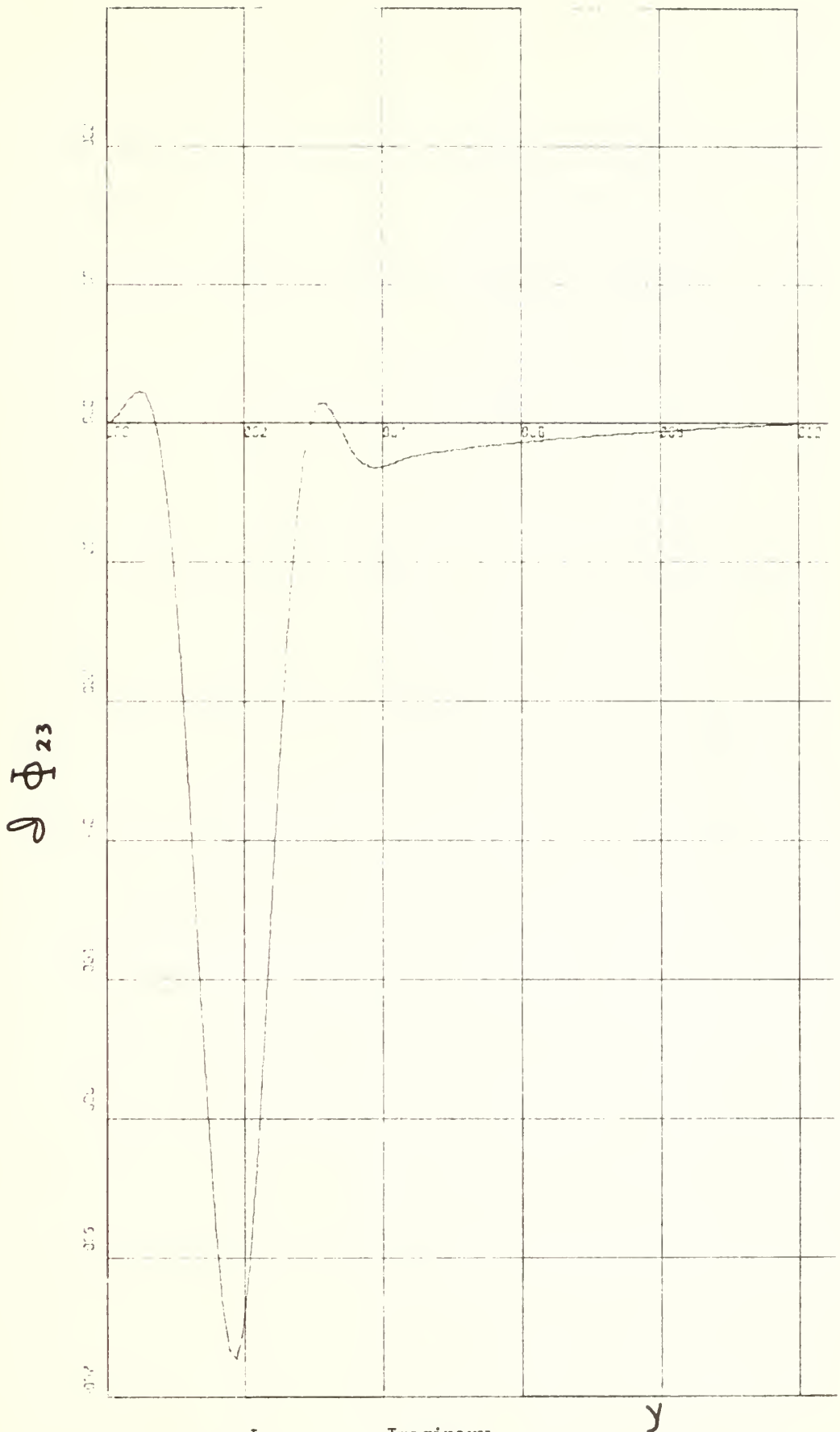
Vertical Scale .1/division



Φ_{22} Imaginary

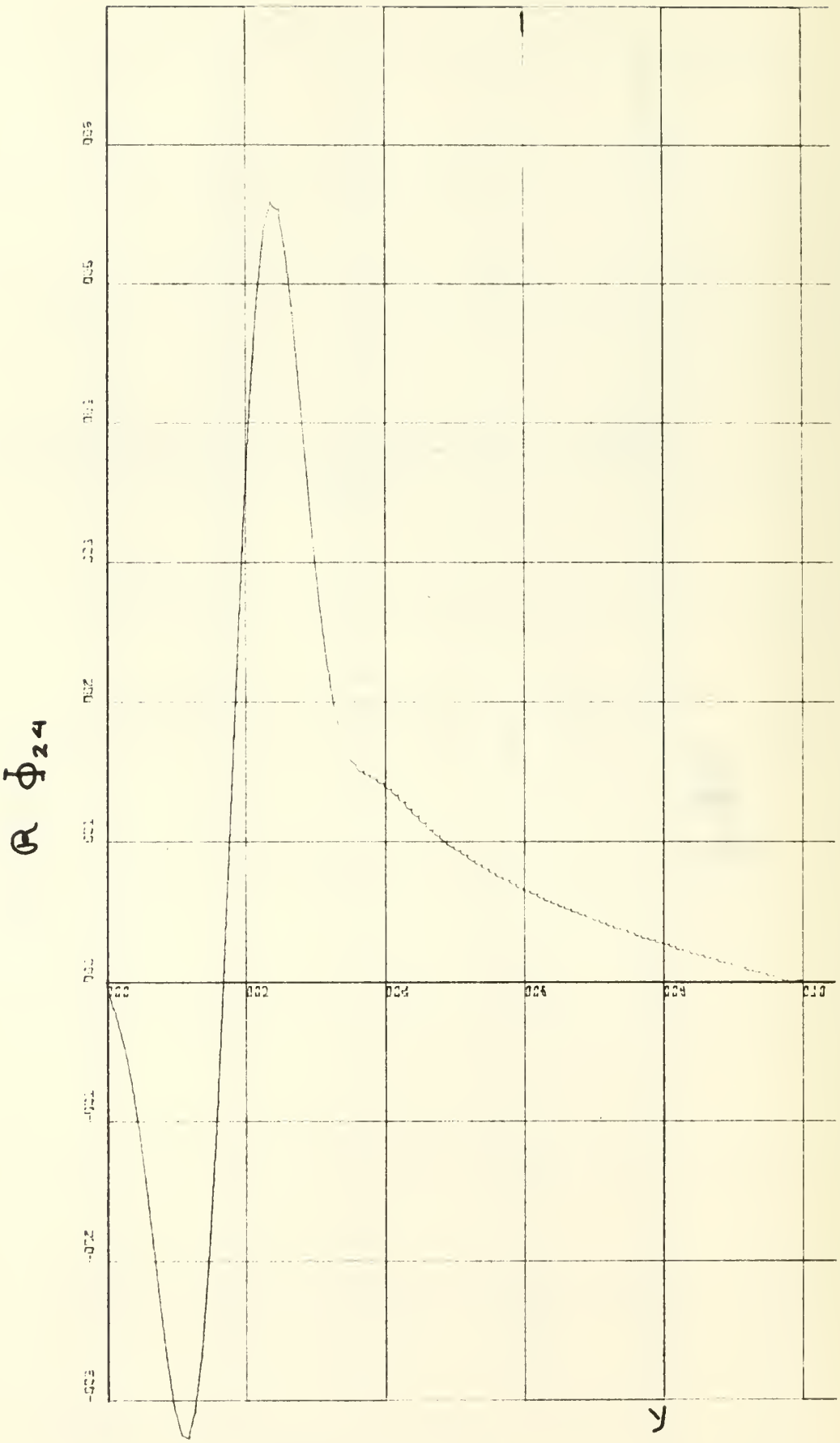


Φ_{23} Real



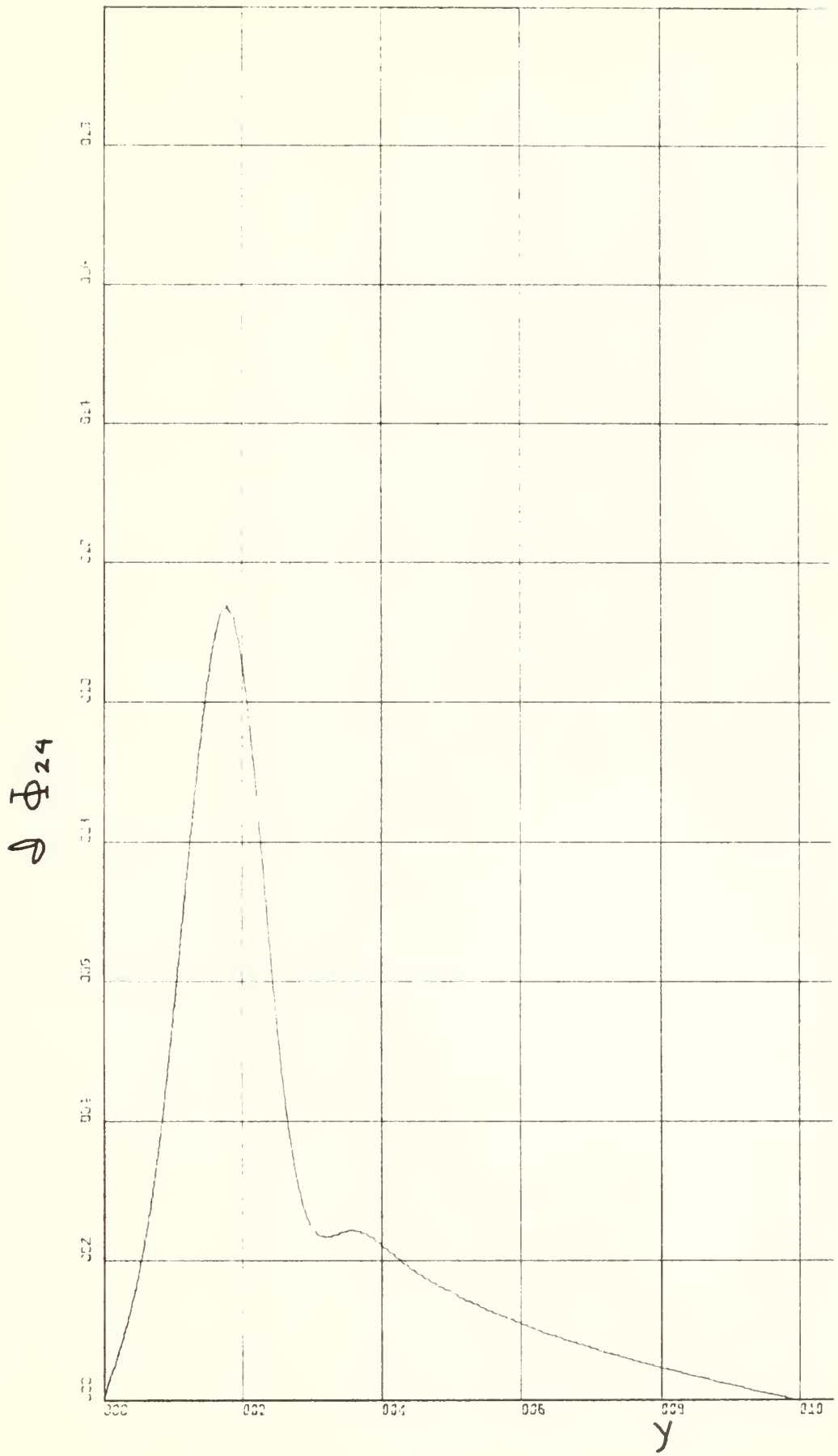
ϕ_{23} Imaginary

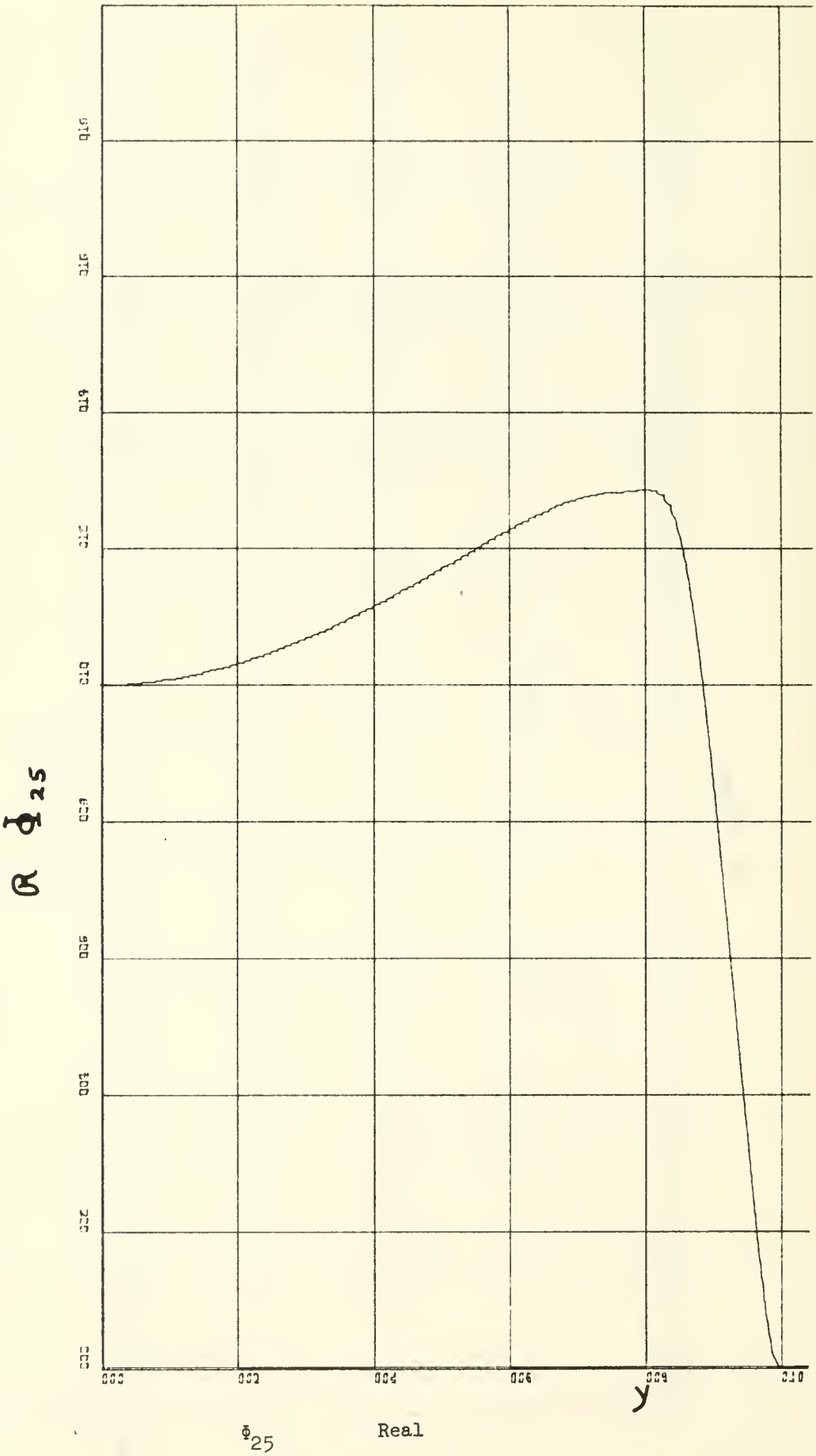
Vertical Scale .1/division

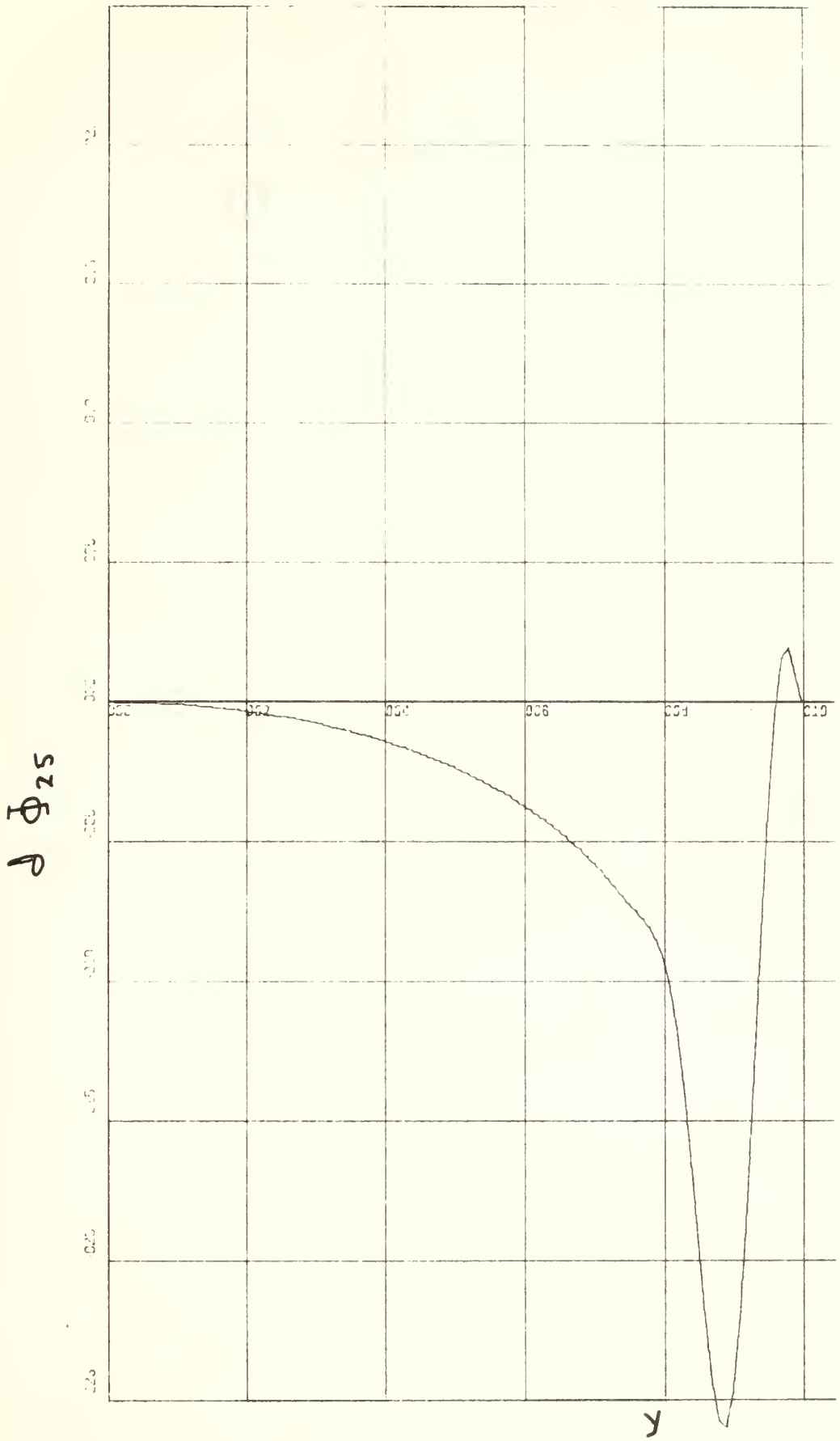


Φ_{24} Real

Vertical Scale .1/division

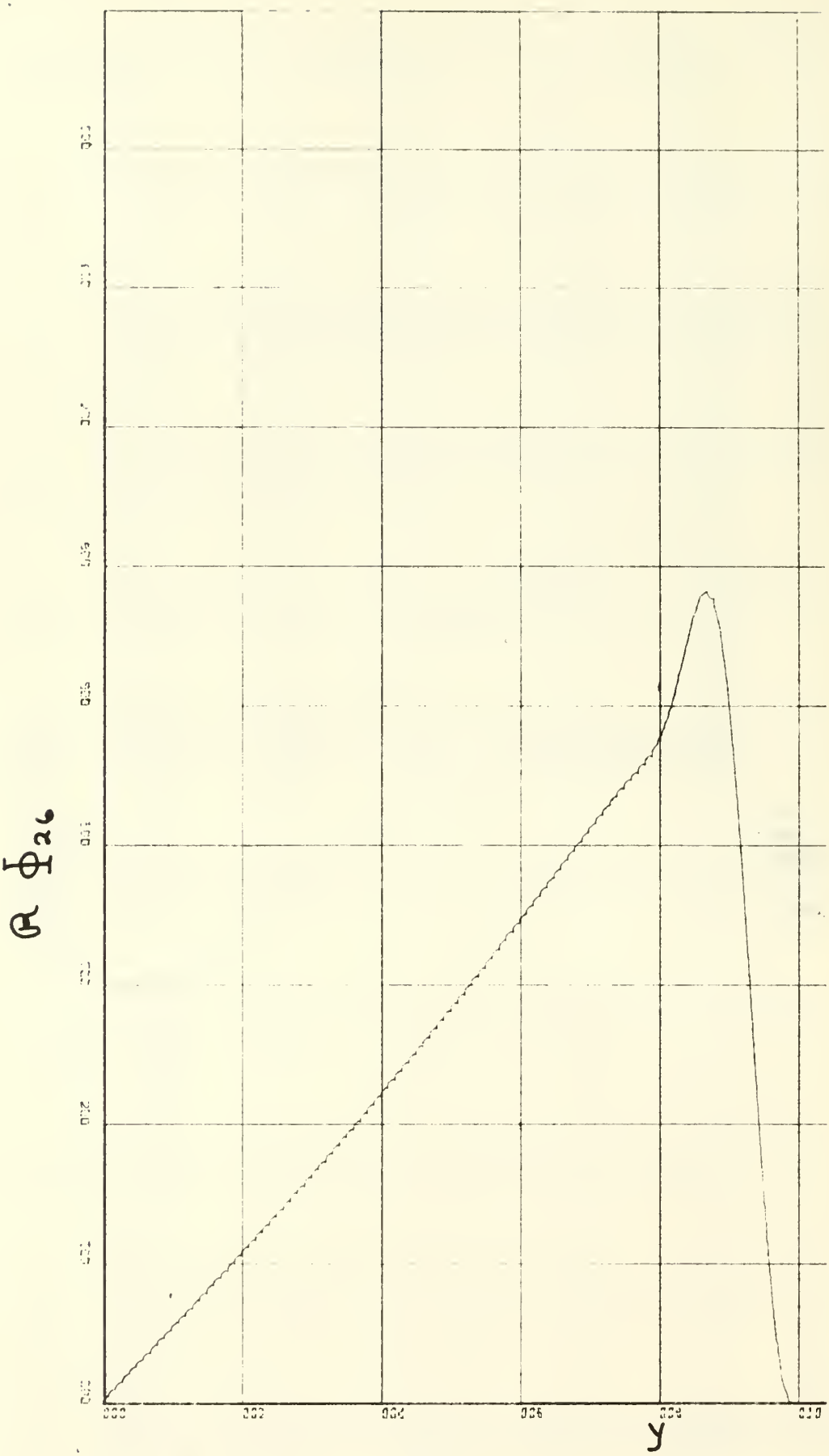

Φ_{24}
y
Φ_{24} Imaginary


R ϕ_{25}
y
Φ_{25} Real



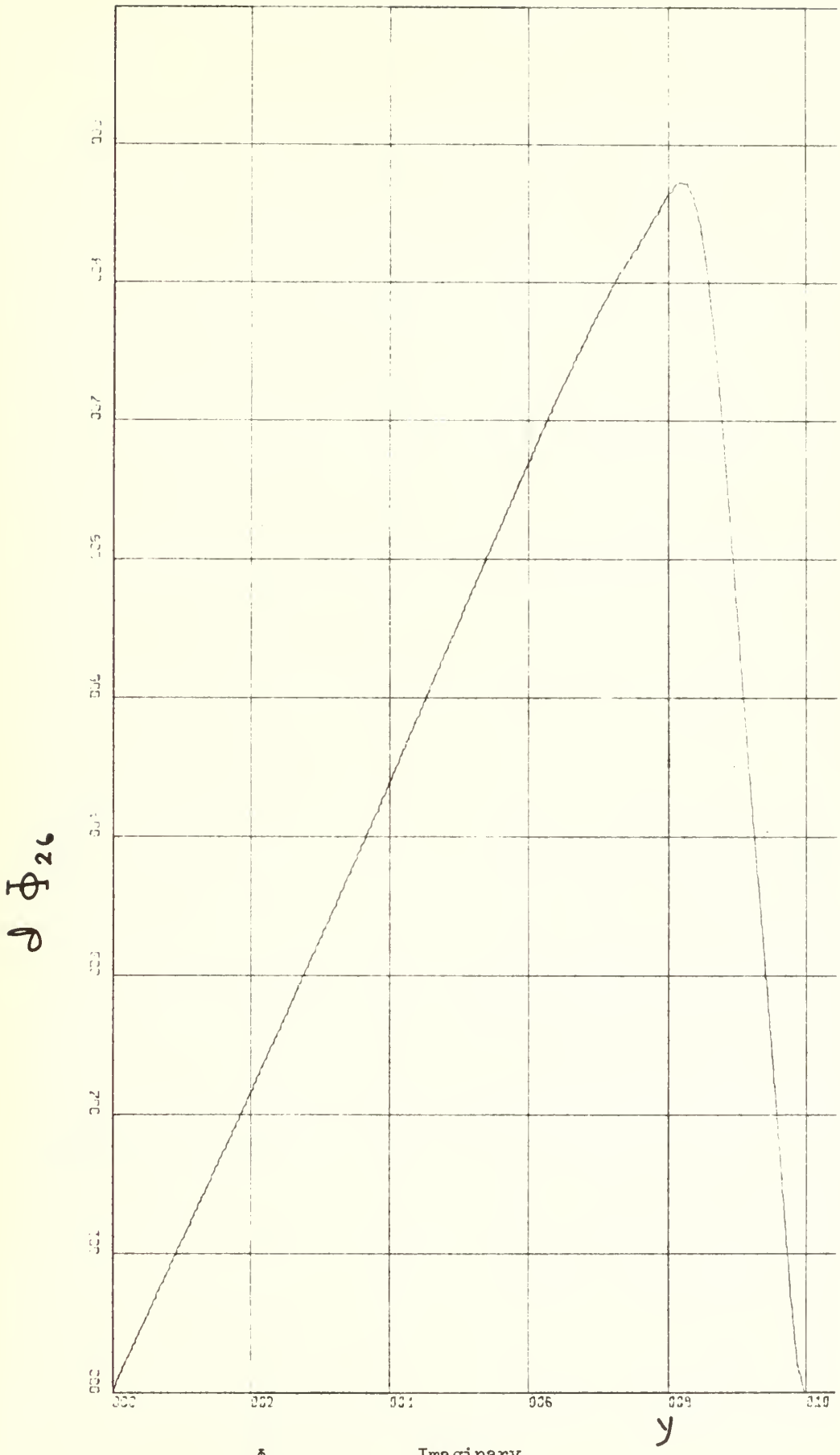
Φ_{25} Imaginary

Vertical Scale .05/division



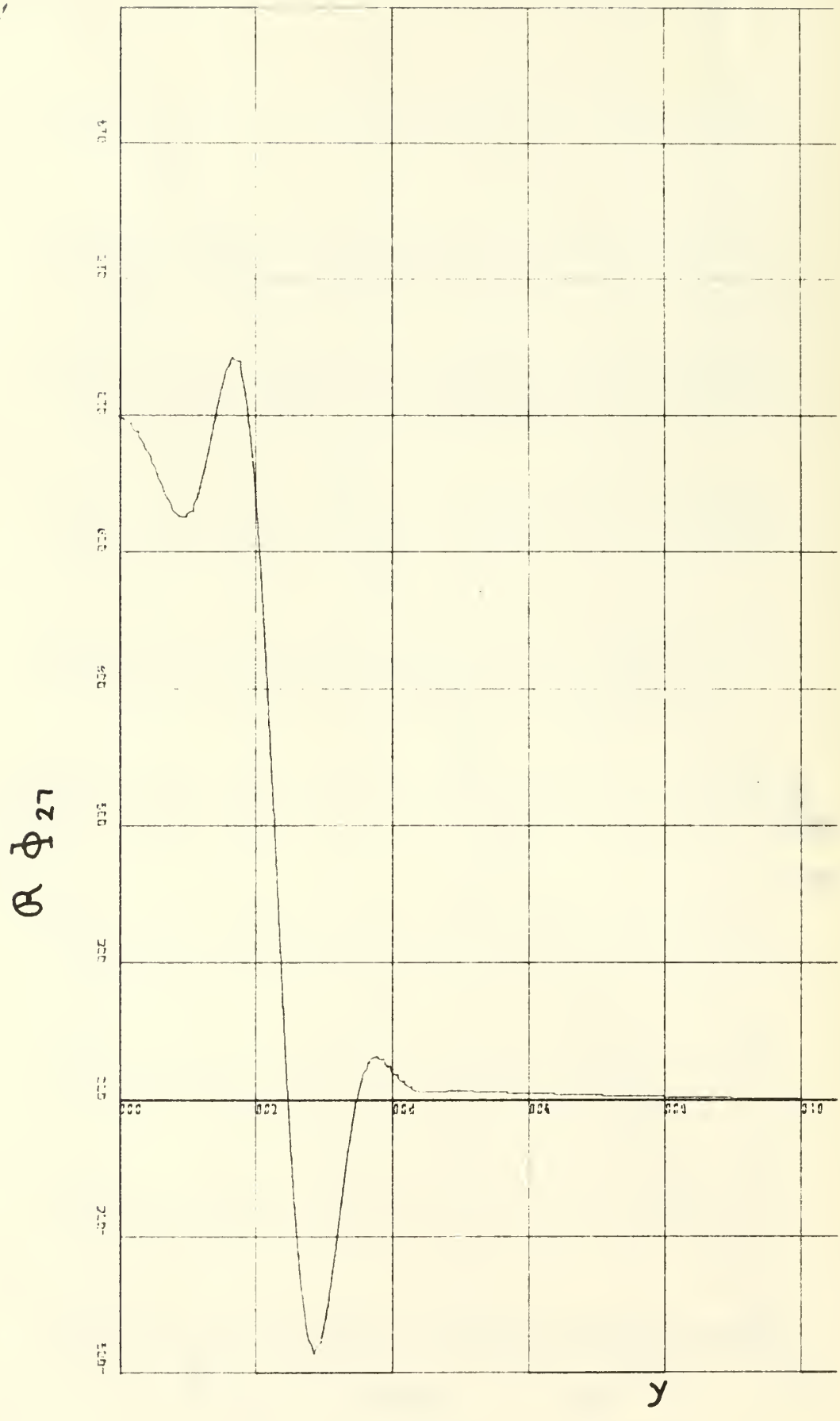
Φ_{26} Real

Vertical Scale .1/division

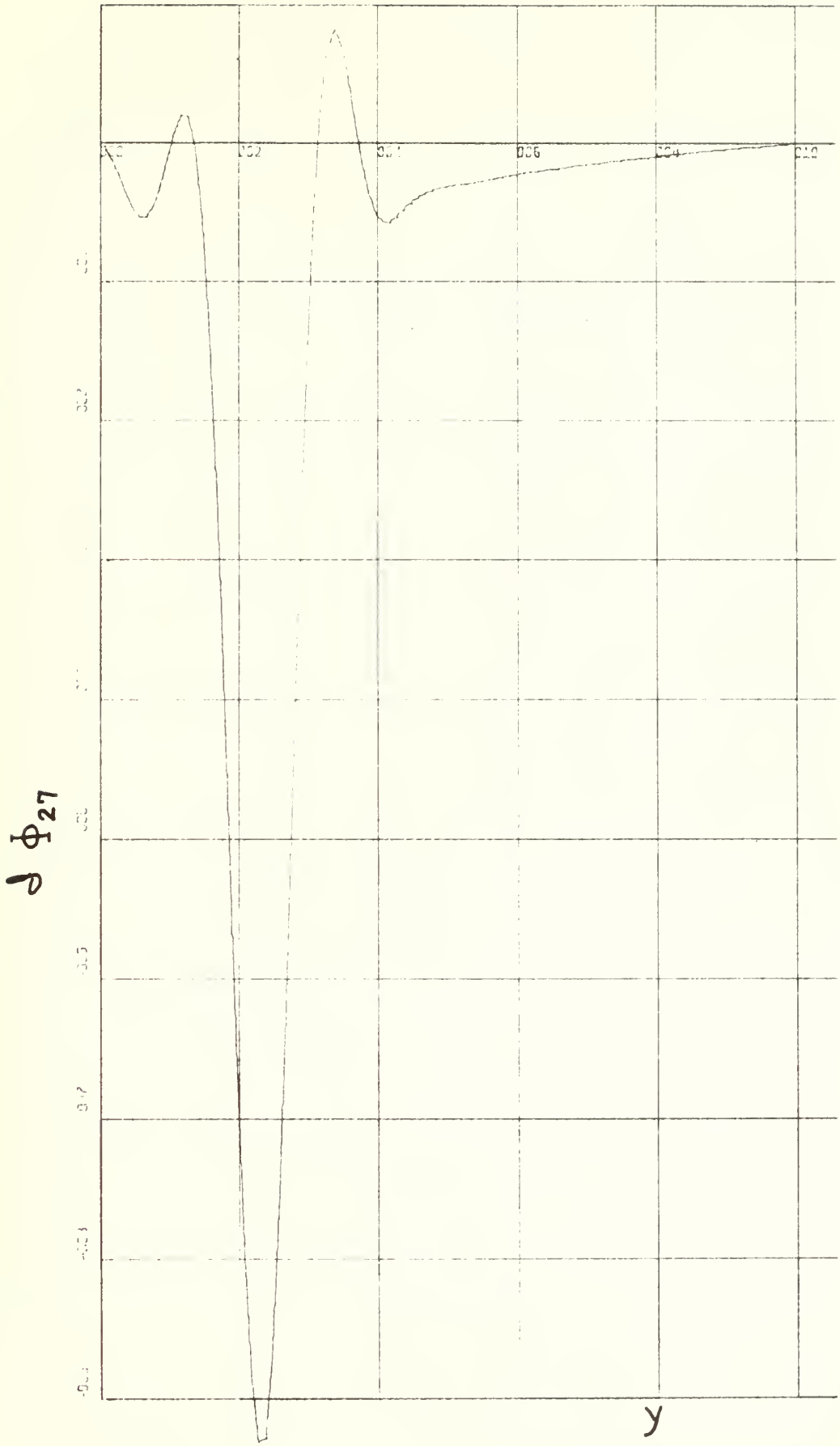


Φ_{26} Imaginary

Vertical Scale .1/division

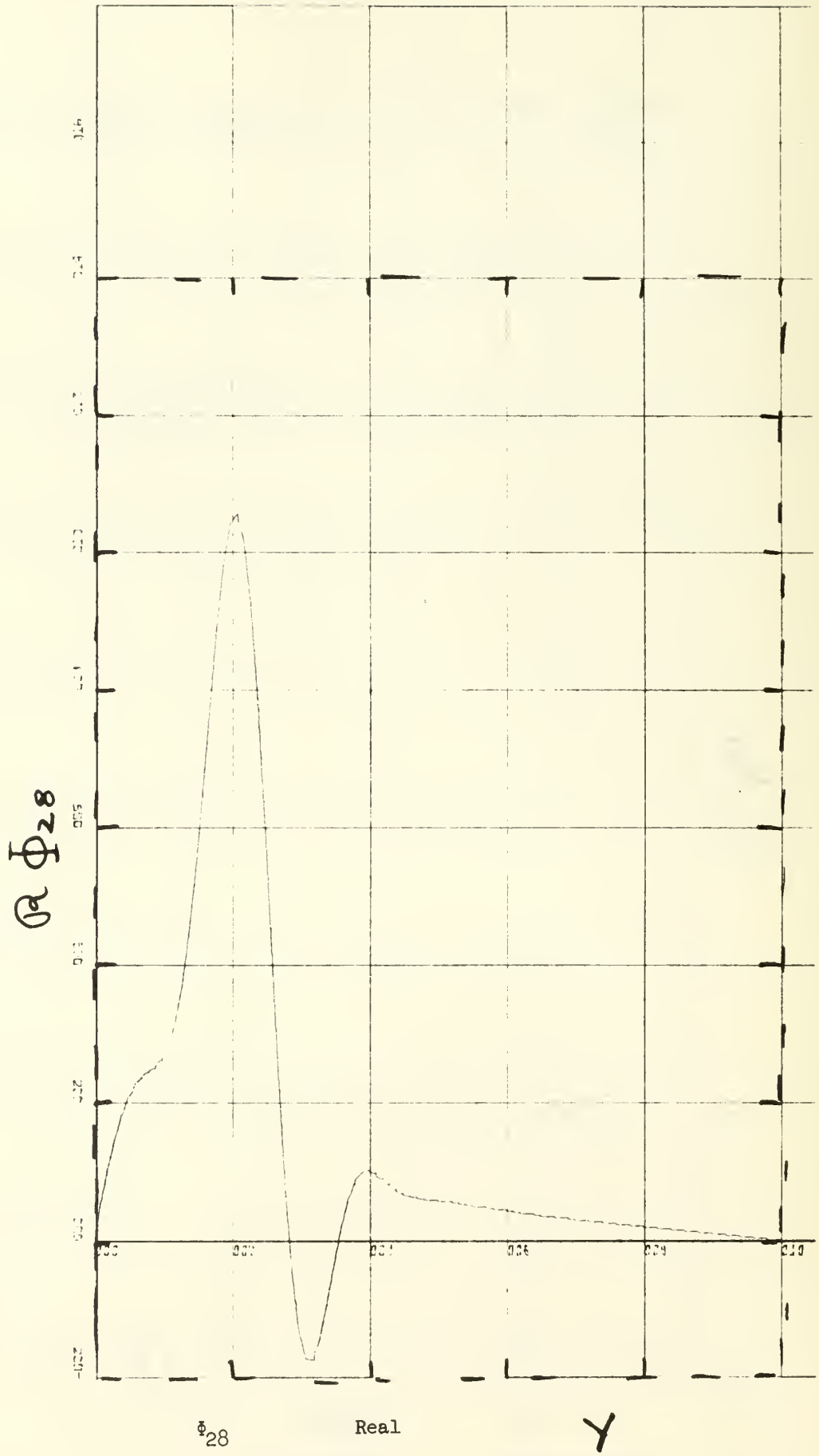


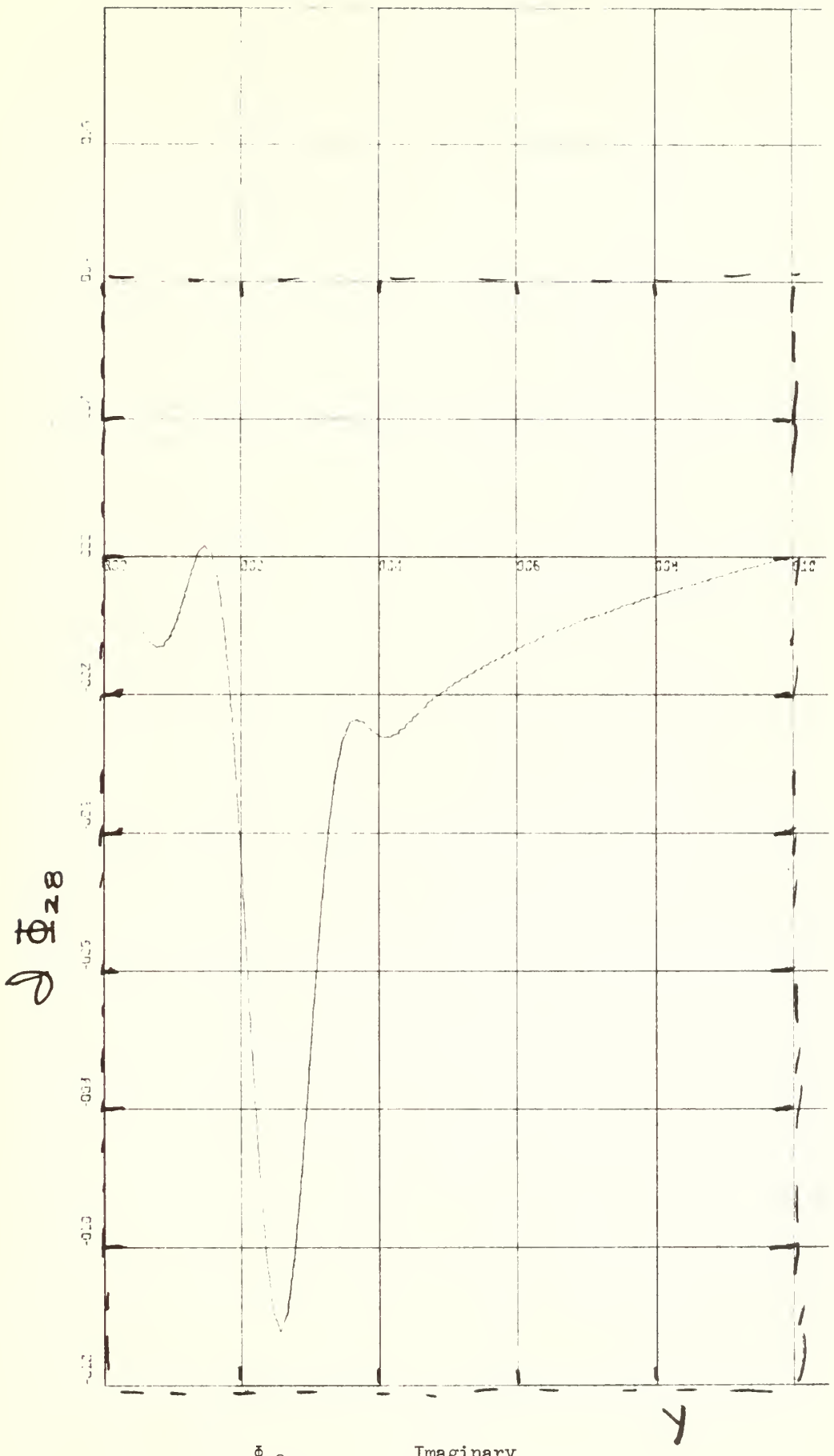
Φ_{27} Real



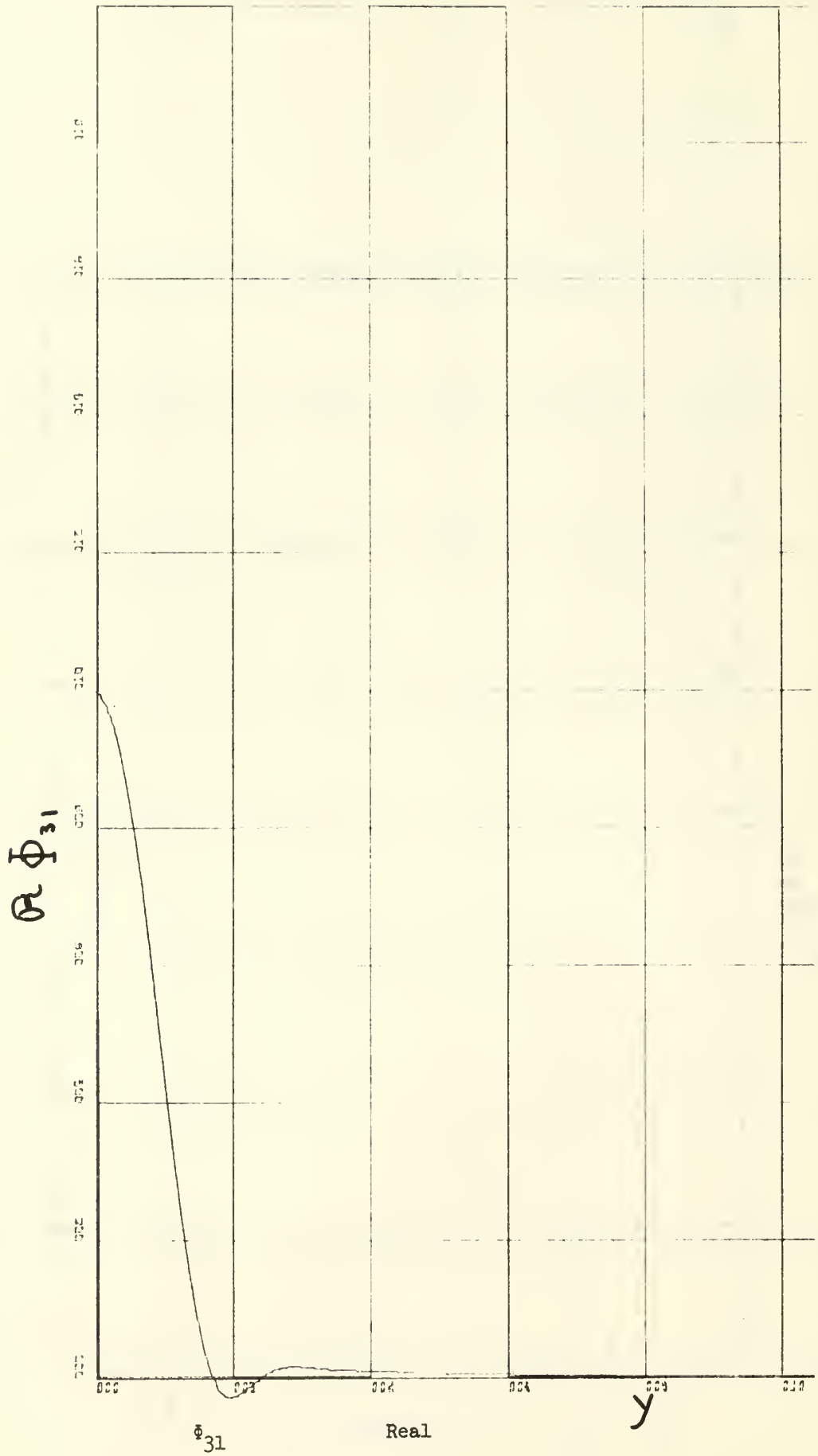
Φ_{27} Imaginary

Vertical Scale .1/division

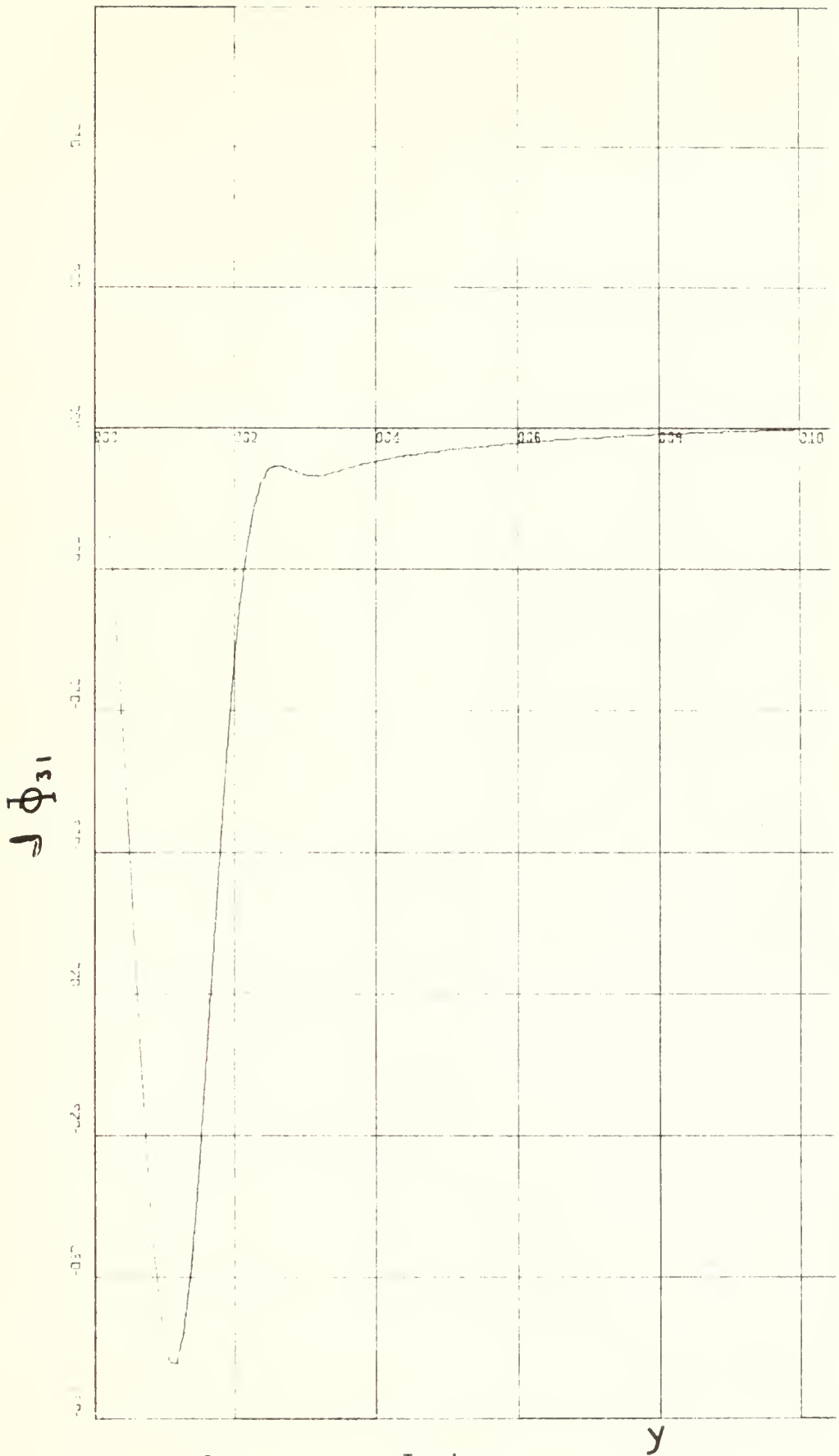

Real Φ_{28}
Φ_{28}
Y



Φ_{28} Imaginary

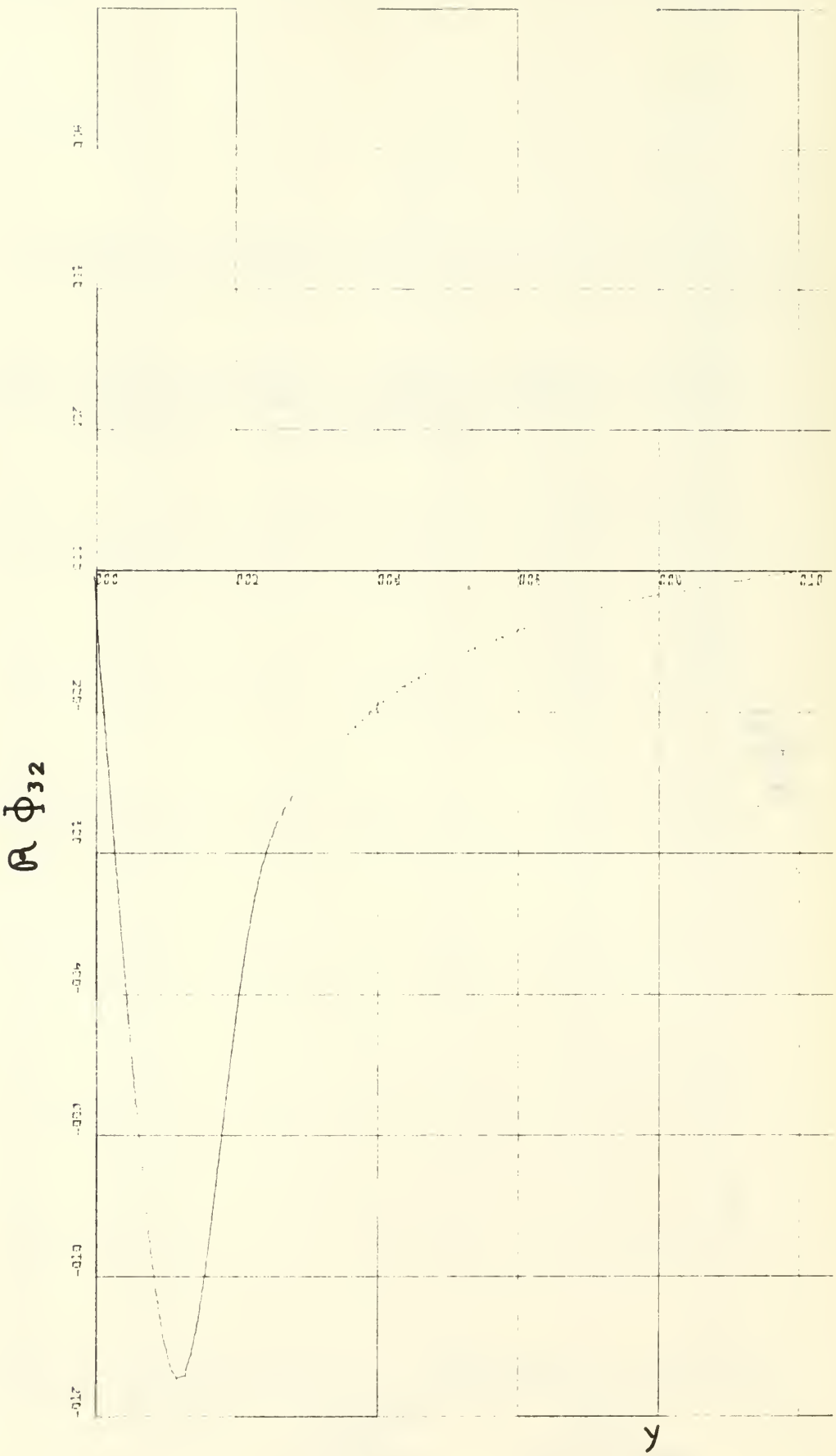


Φ_{31} Real

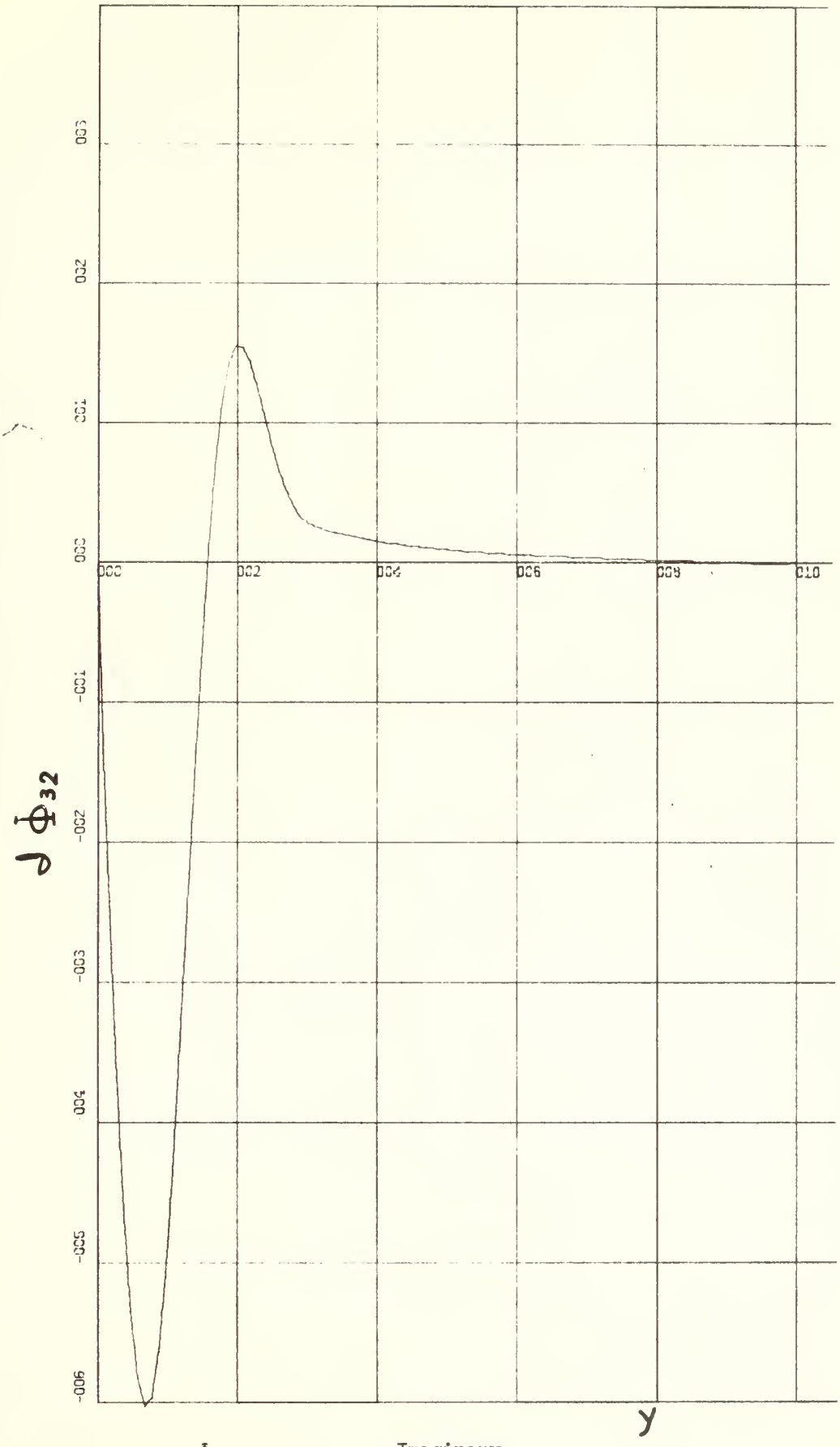


Φ_{31} Imaginary

Vertical Scale .05/division



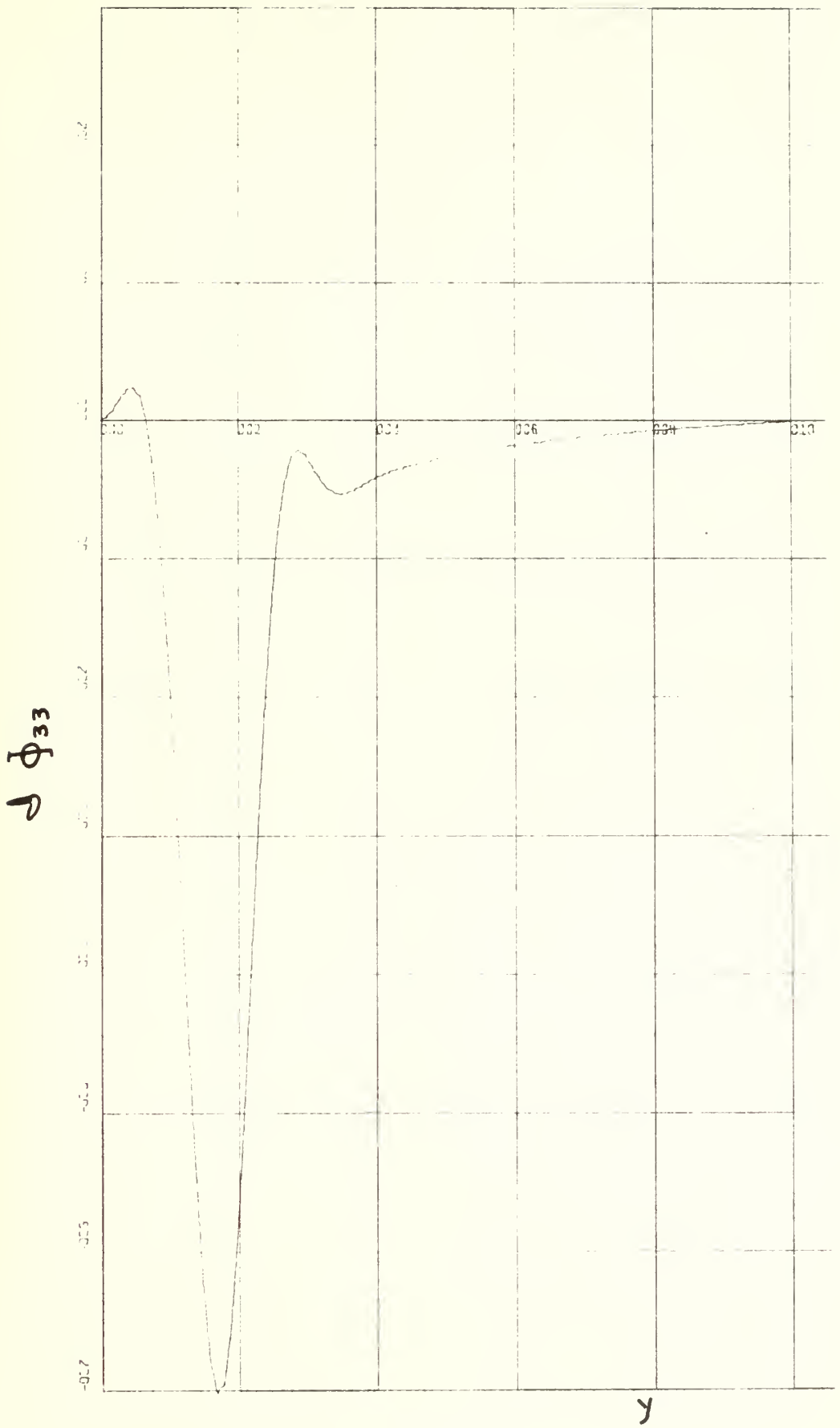
Φ_{32} Real



Φ_{32} Imaginary

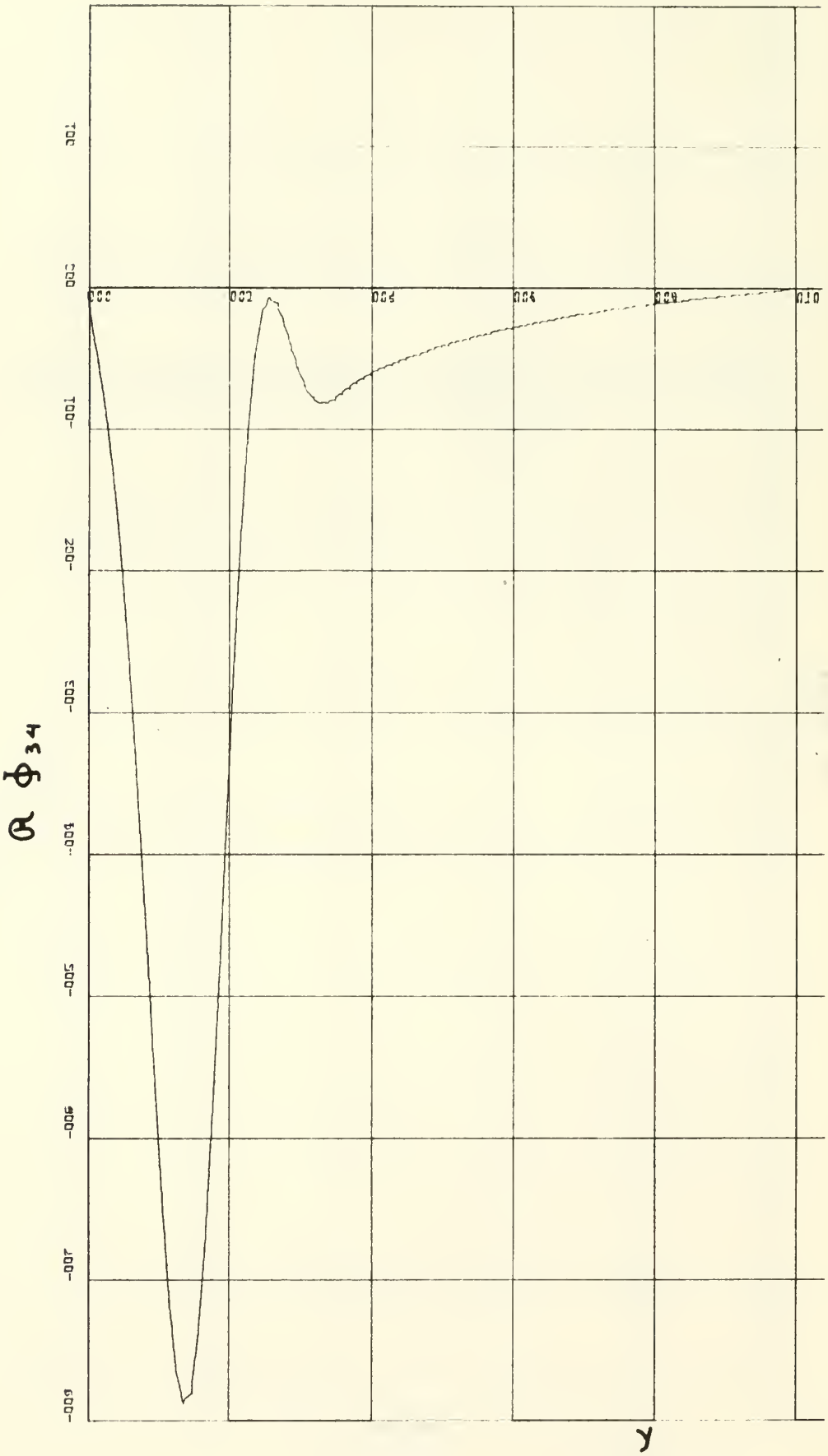
Vertical Scale .1/division

Φ_{33} Real



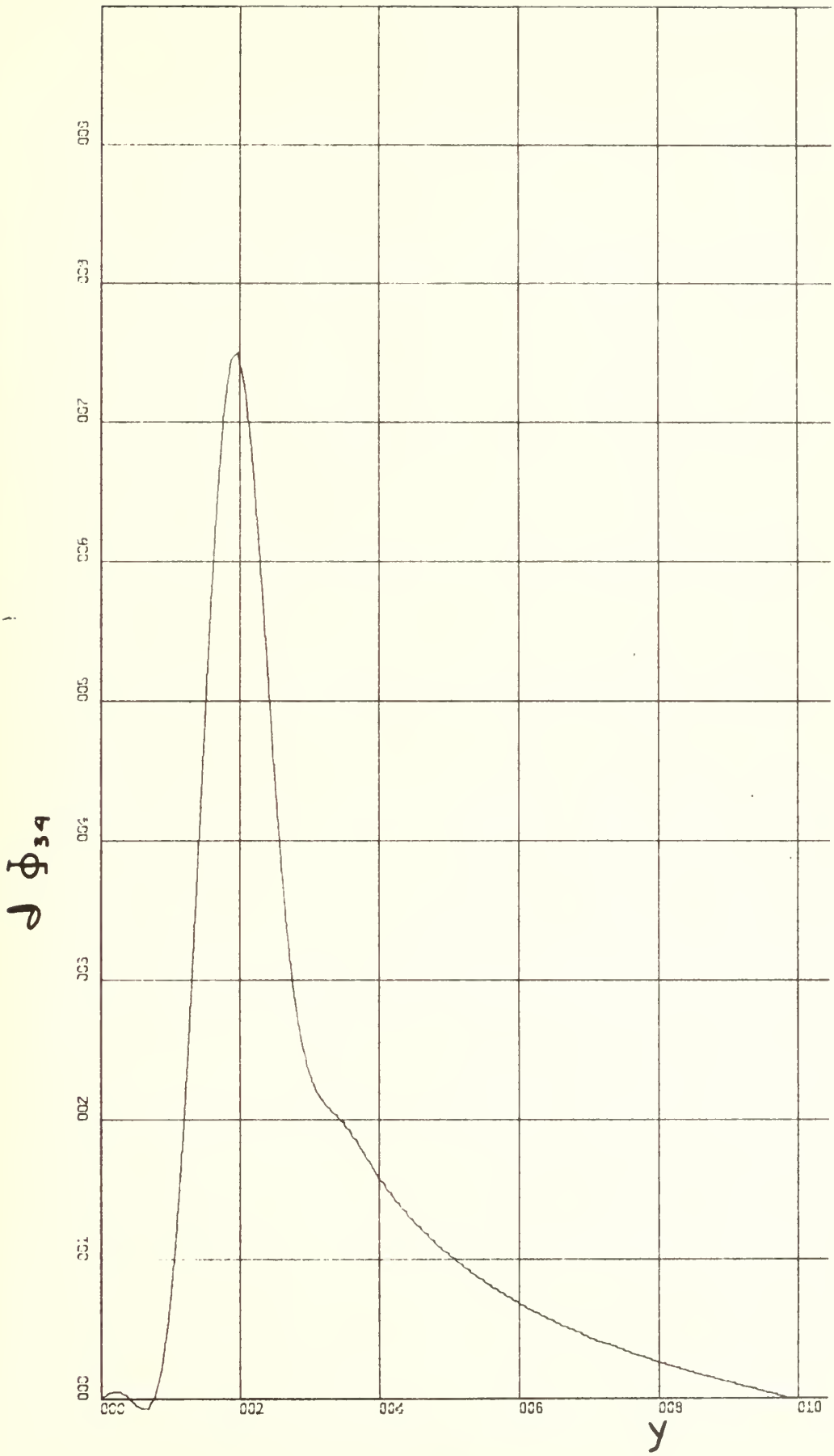
Φ_{33} Imaginary

Vertical Scale .1/division



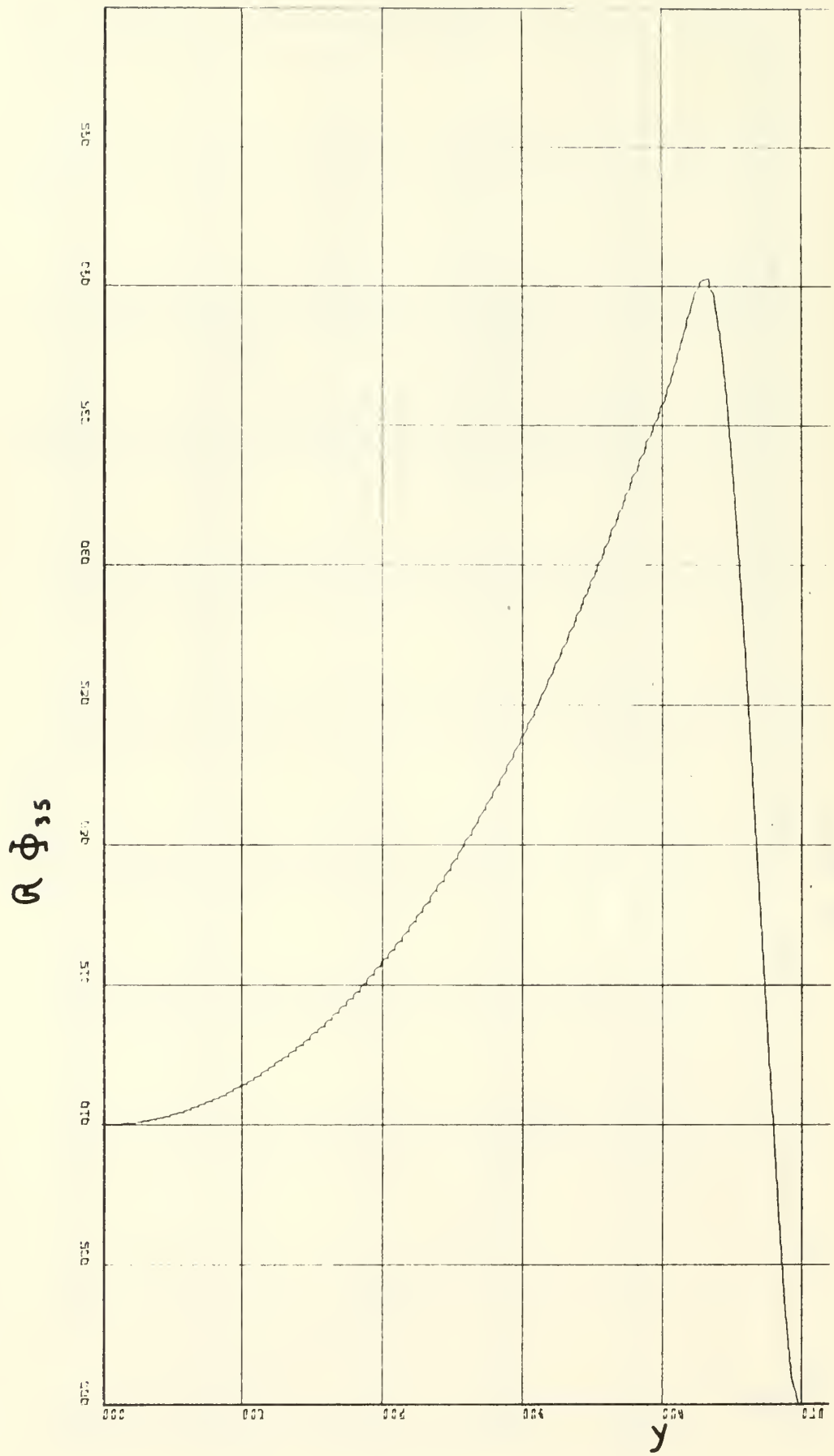
Φ_{34} Real

Vertical Scale .1/division



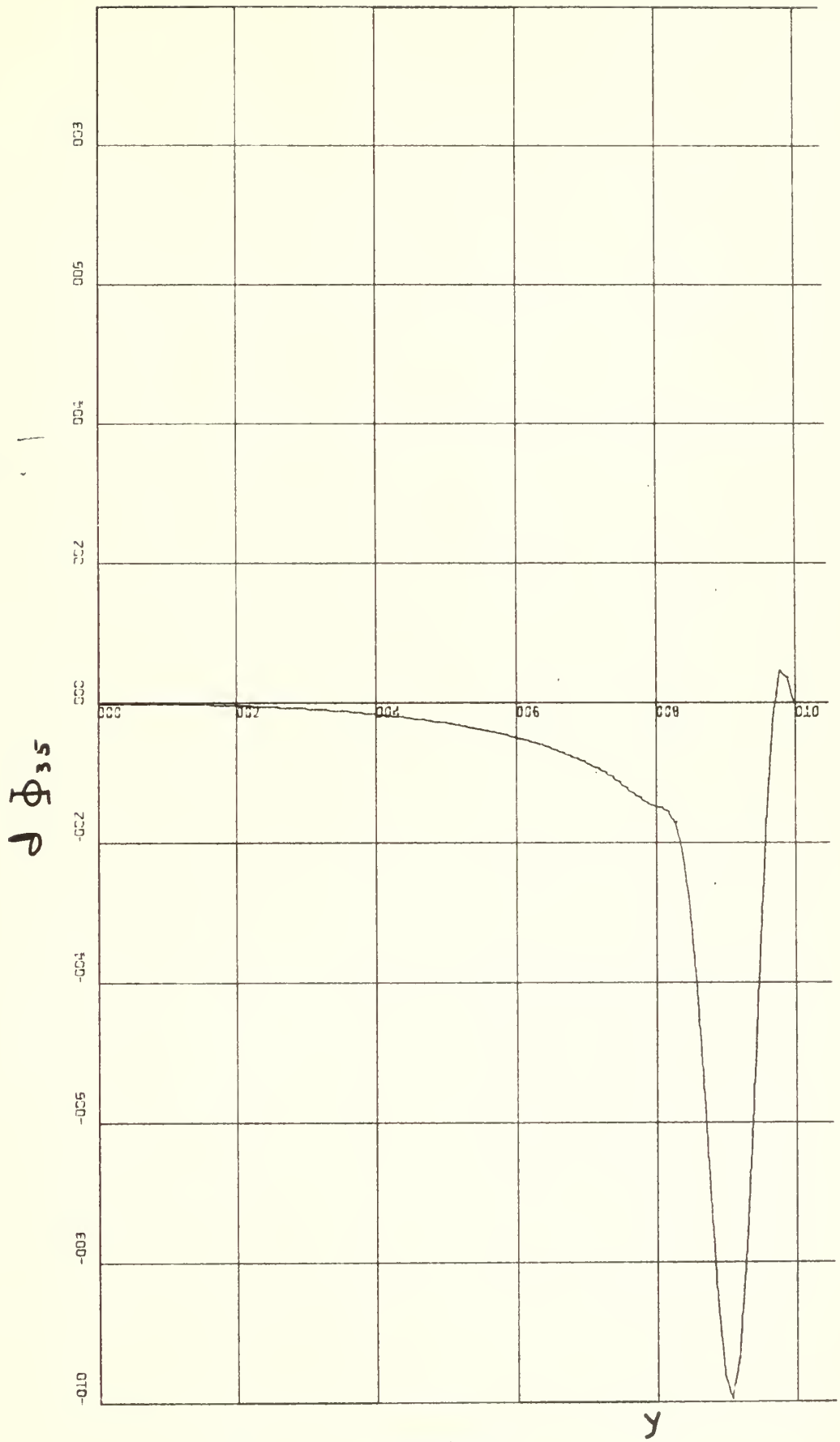
Φ_{34} Imaginary

Vertical Scale .1/division



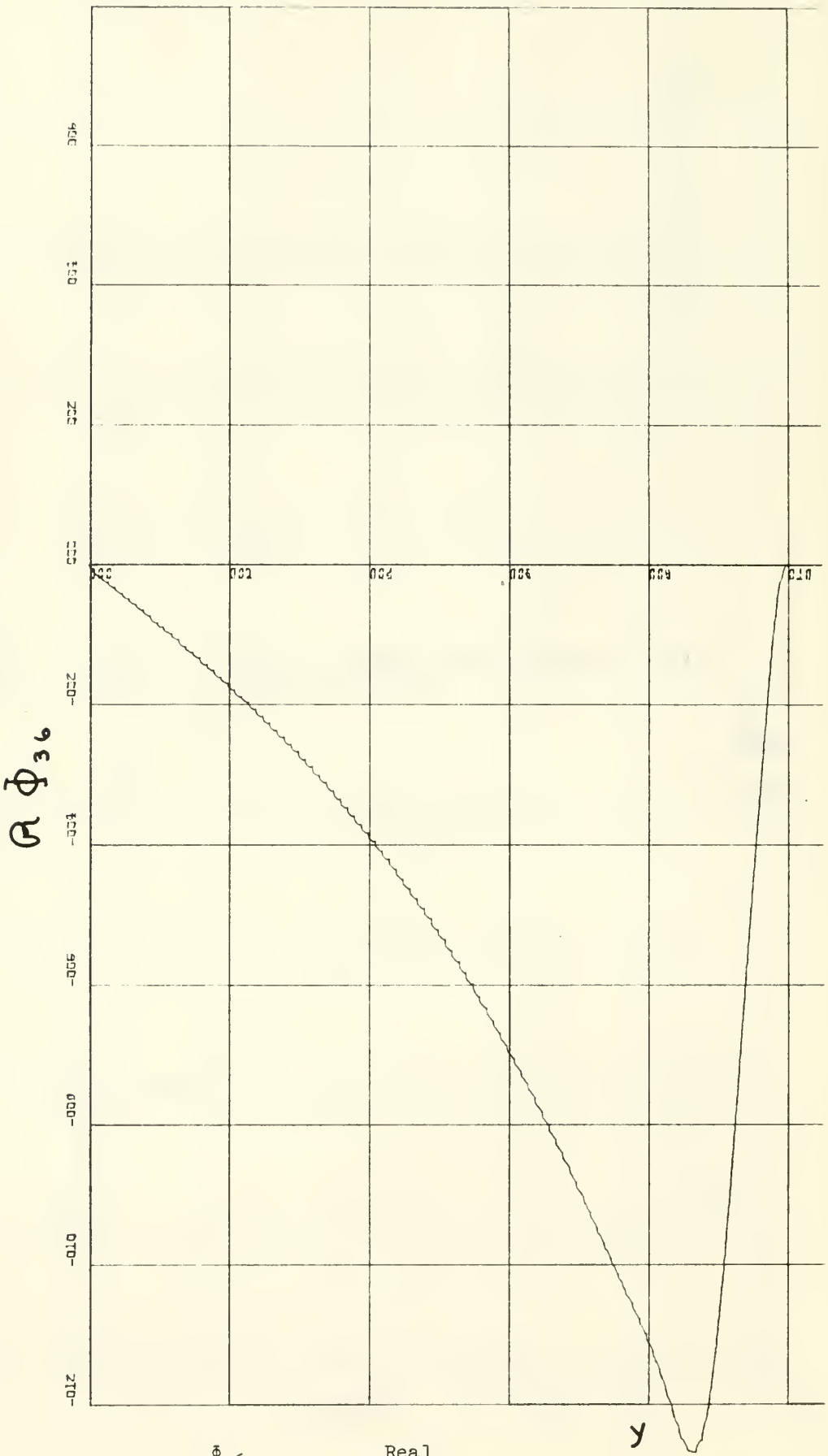
Φ_{35} Real

Vertical Scale .5/division

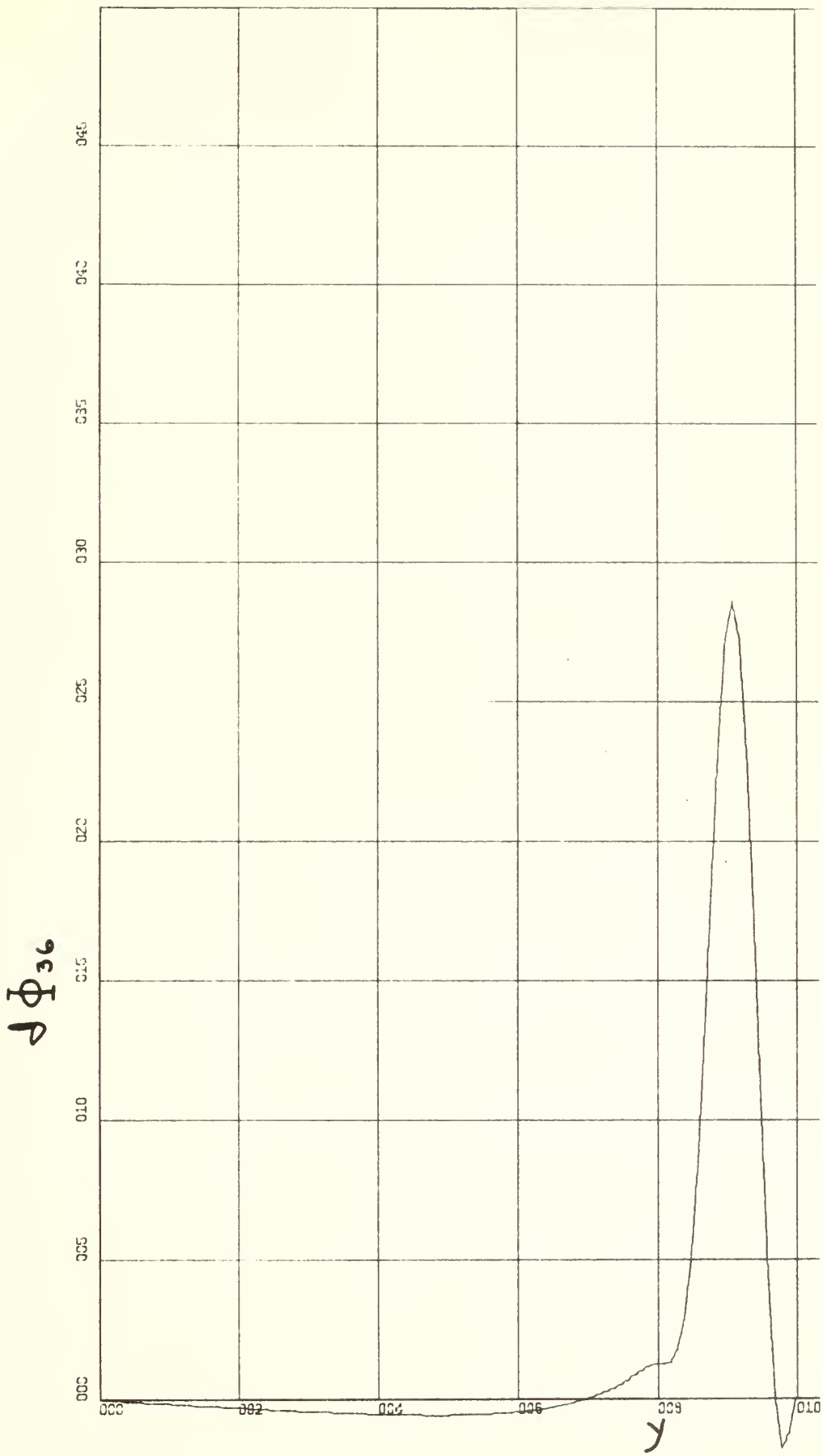


Φ_{35}

Imaginary



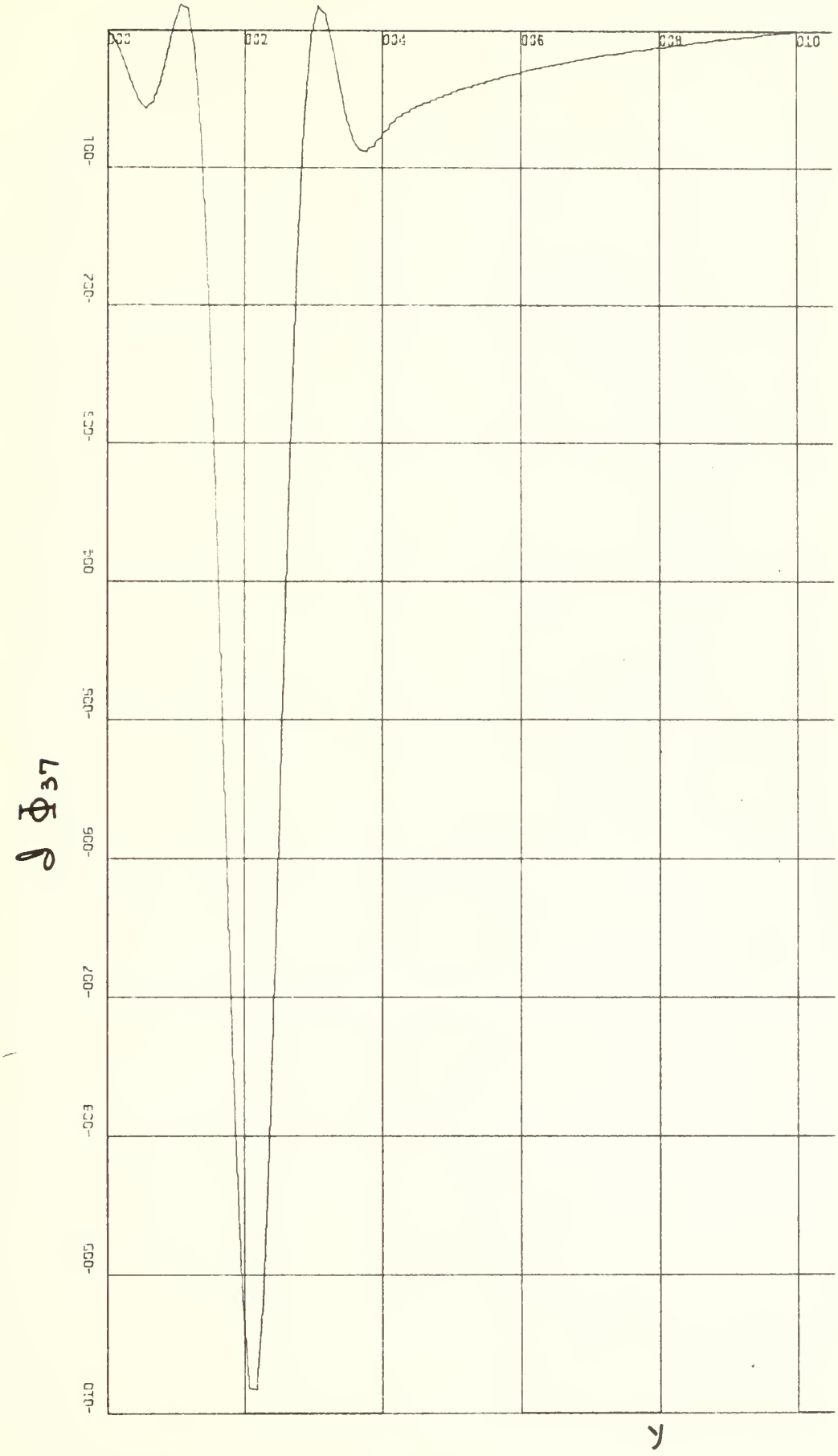
Φ_{36} Real



Φ_{36} Imaginary

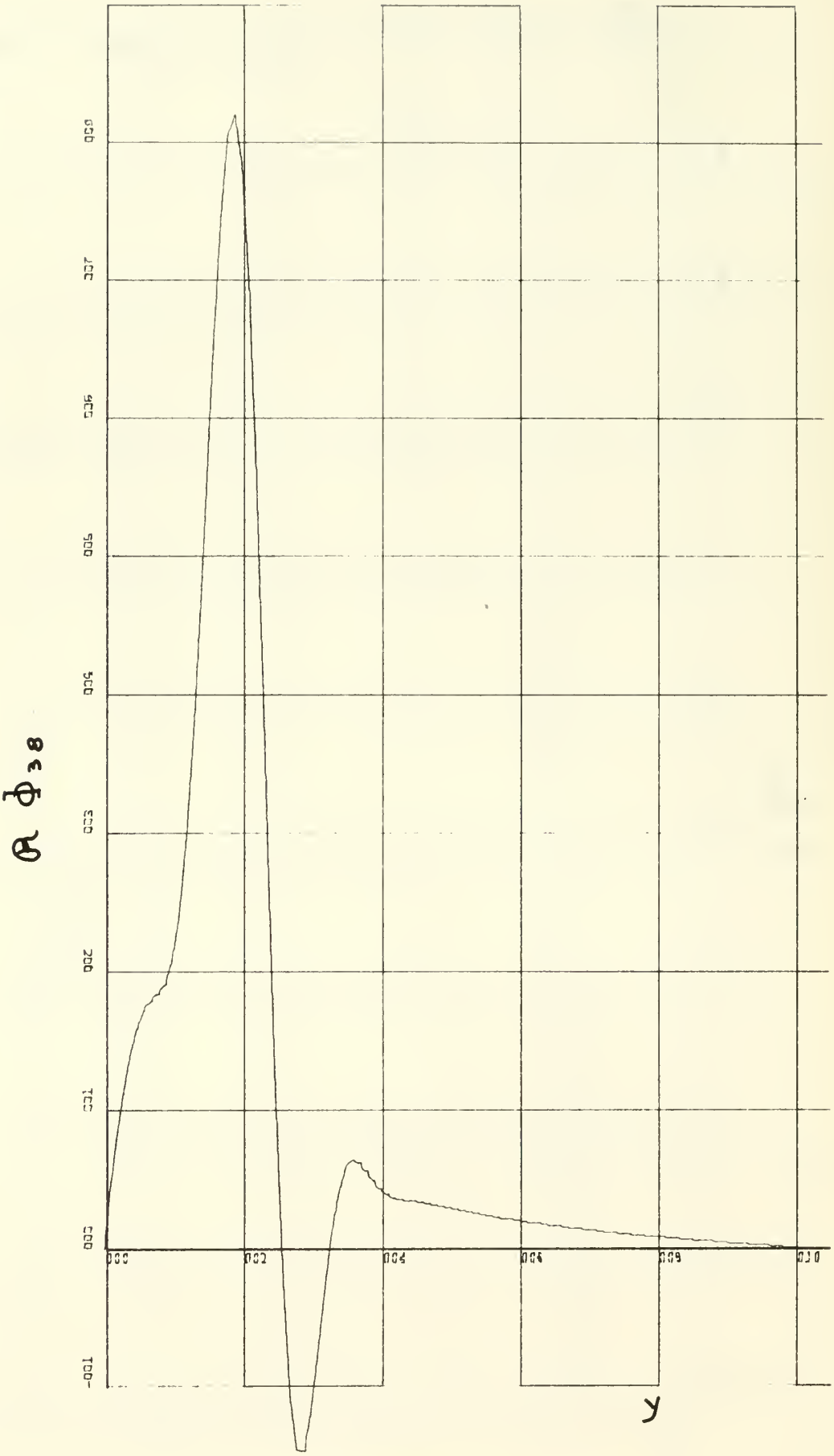
Vertical Scale .05/division

Φ_{37} Real



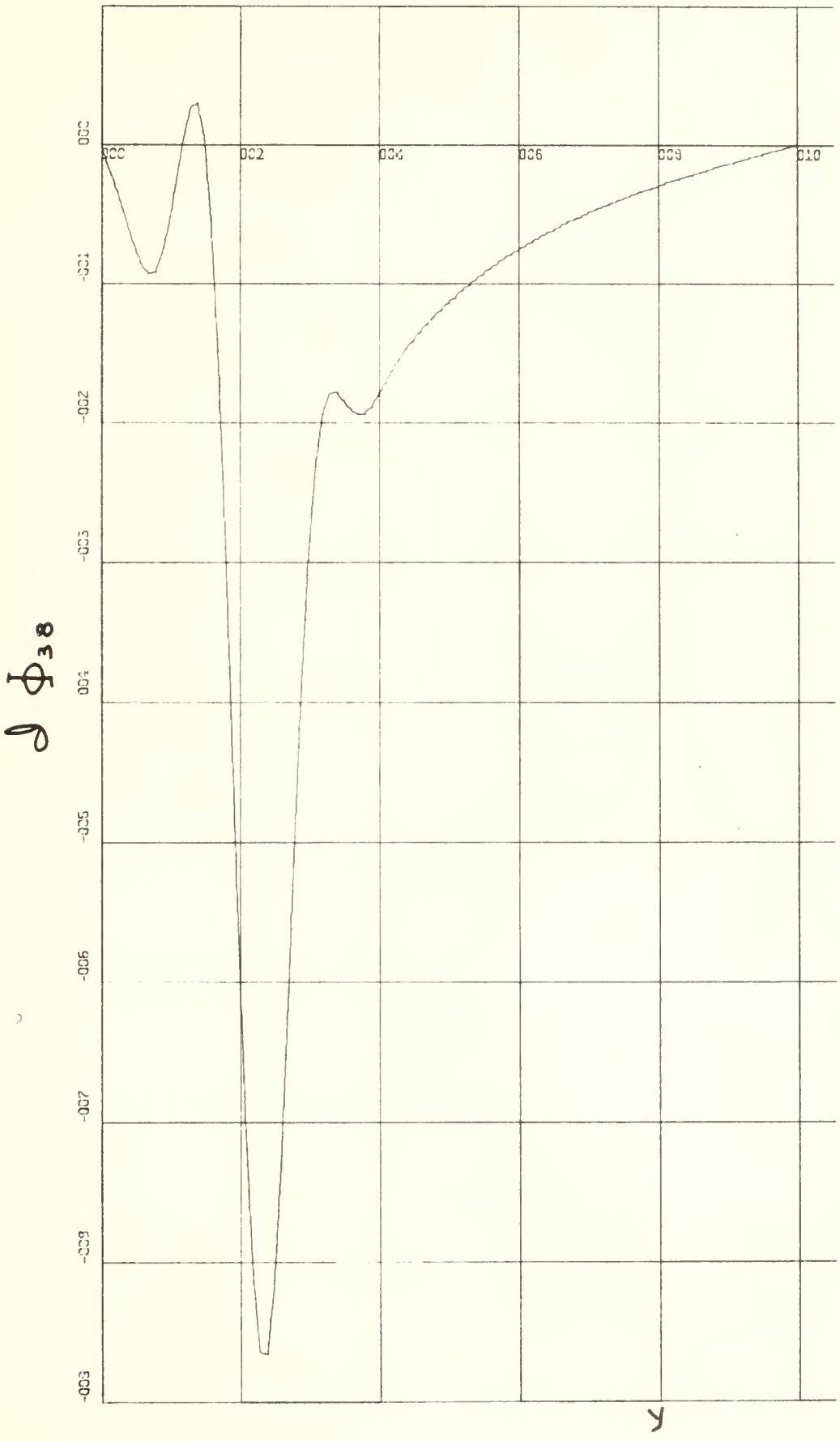
Φ_{37} Imaginary

Vertical Scale .1/division



Φ_{38} Real

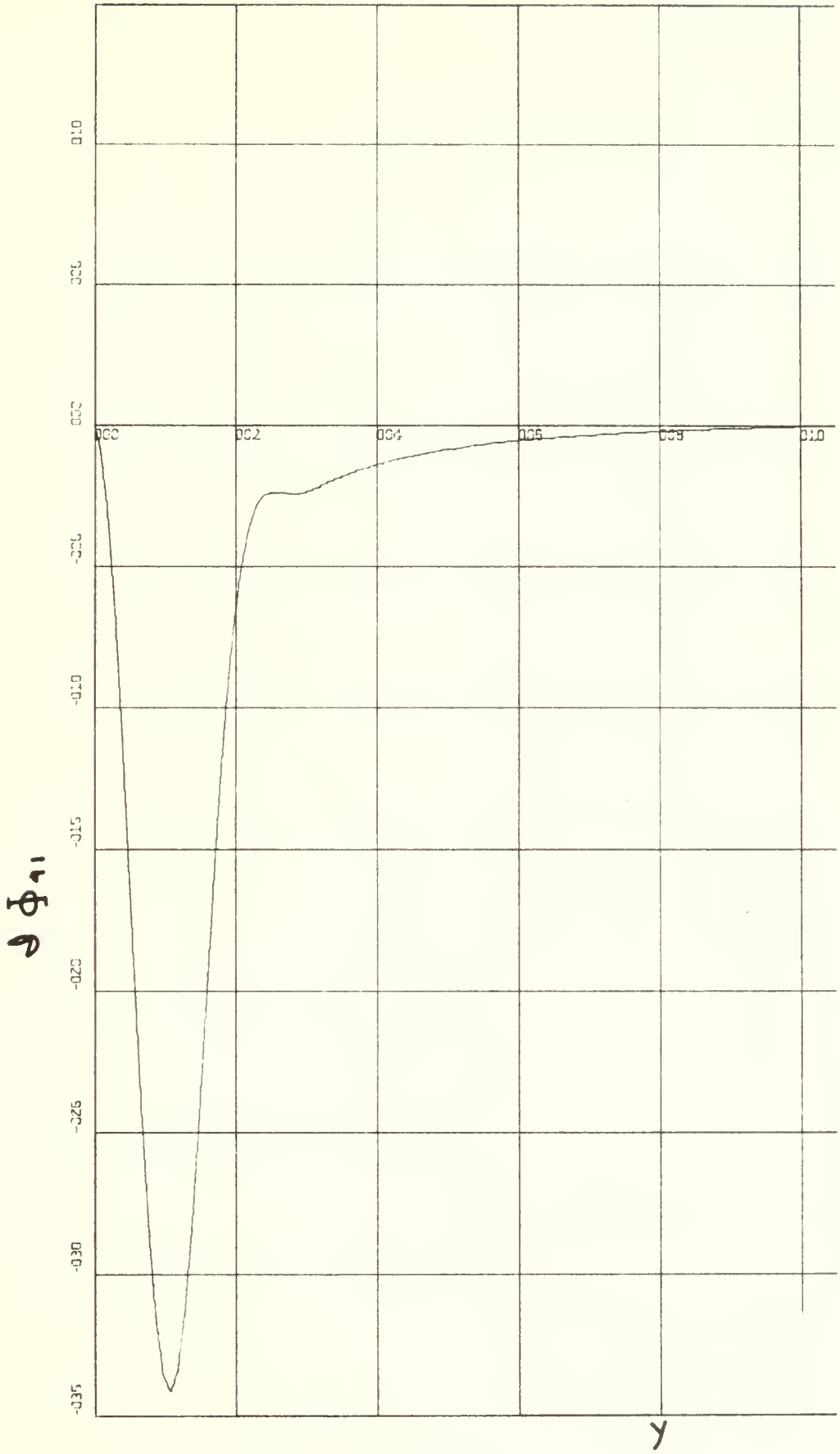
Vertical Scale .1/division



Φ_{38} Imaginary

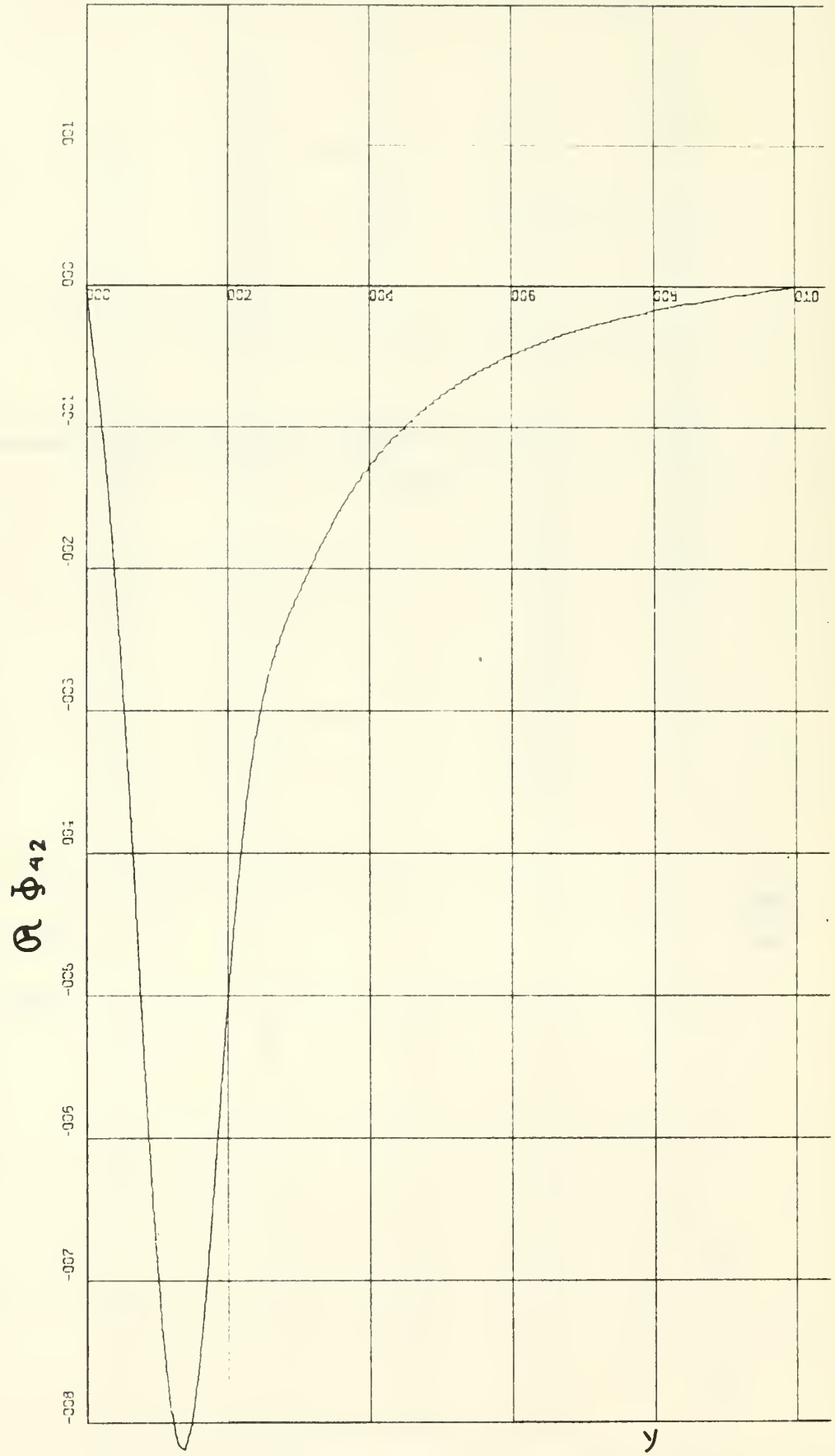
Vertical Scale .1/division

Φ_{41}
y
Φ_{41} Real



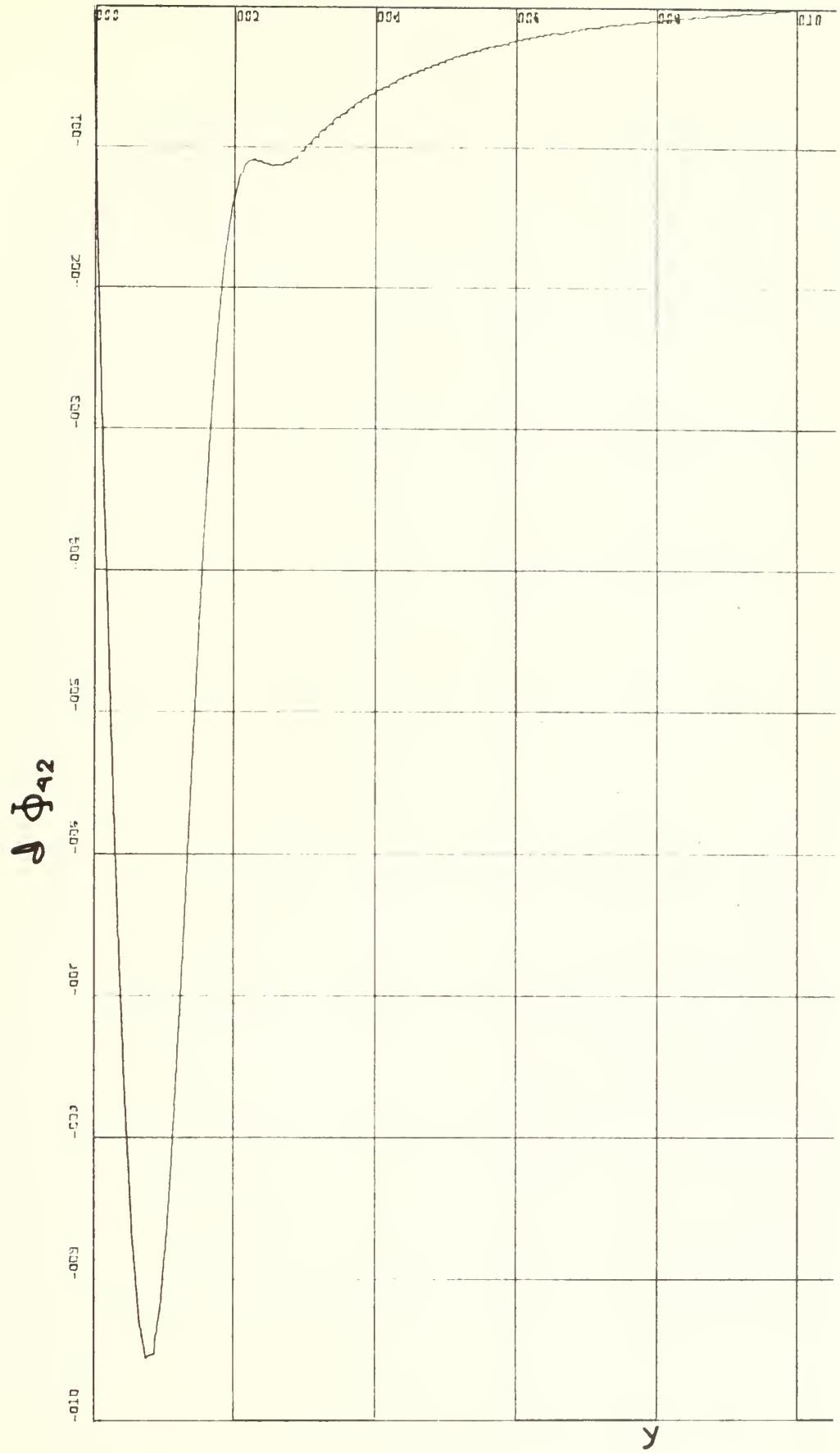
Φ_{41} Imaginary

Vertical Scale .05/division



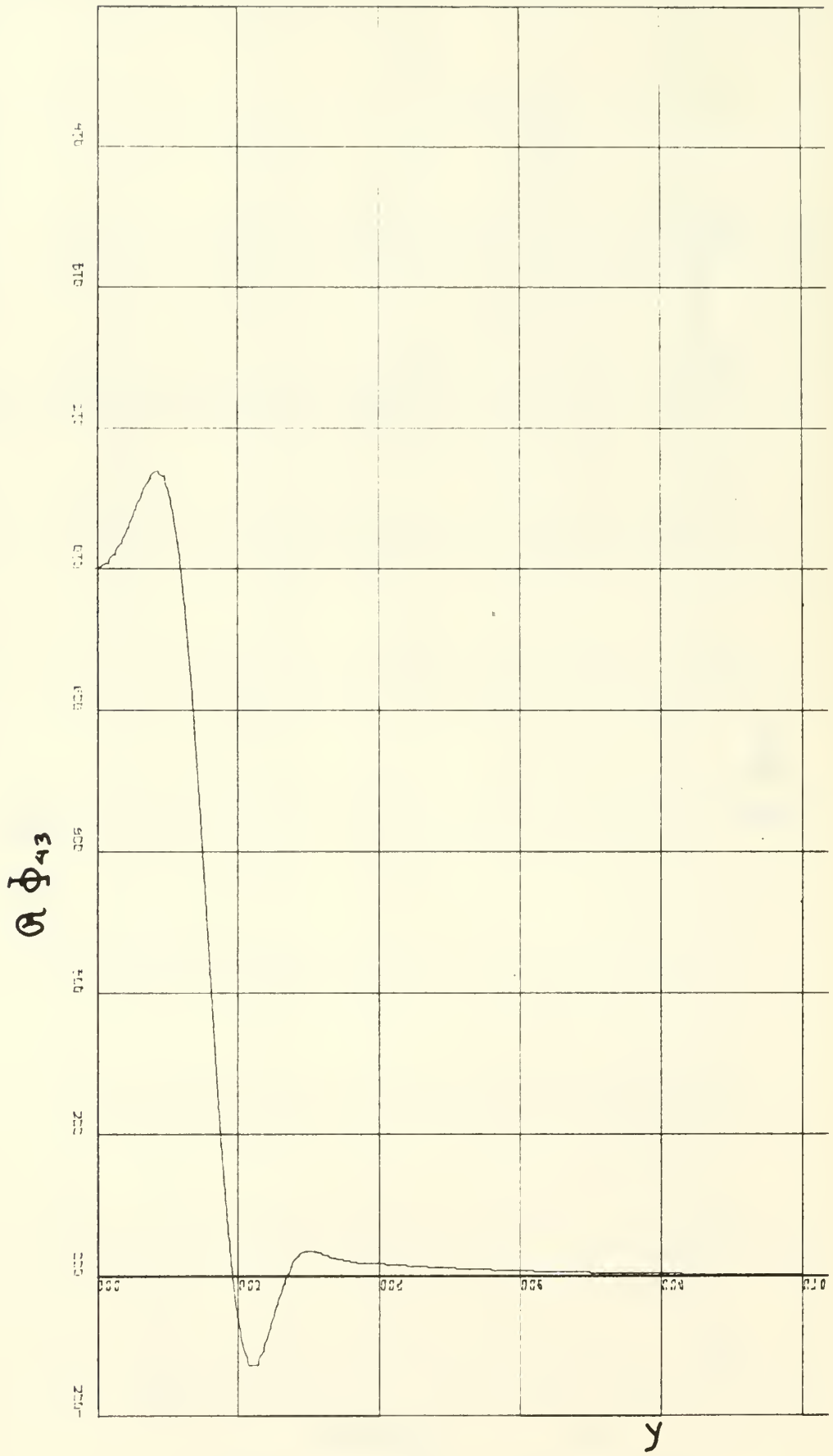
Φ_{42} Real

Vertical Scale .1/division

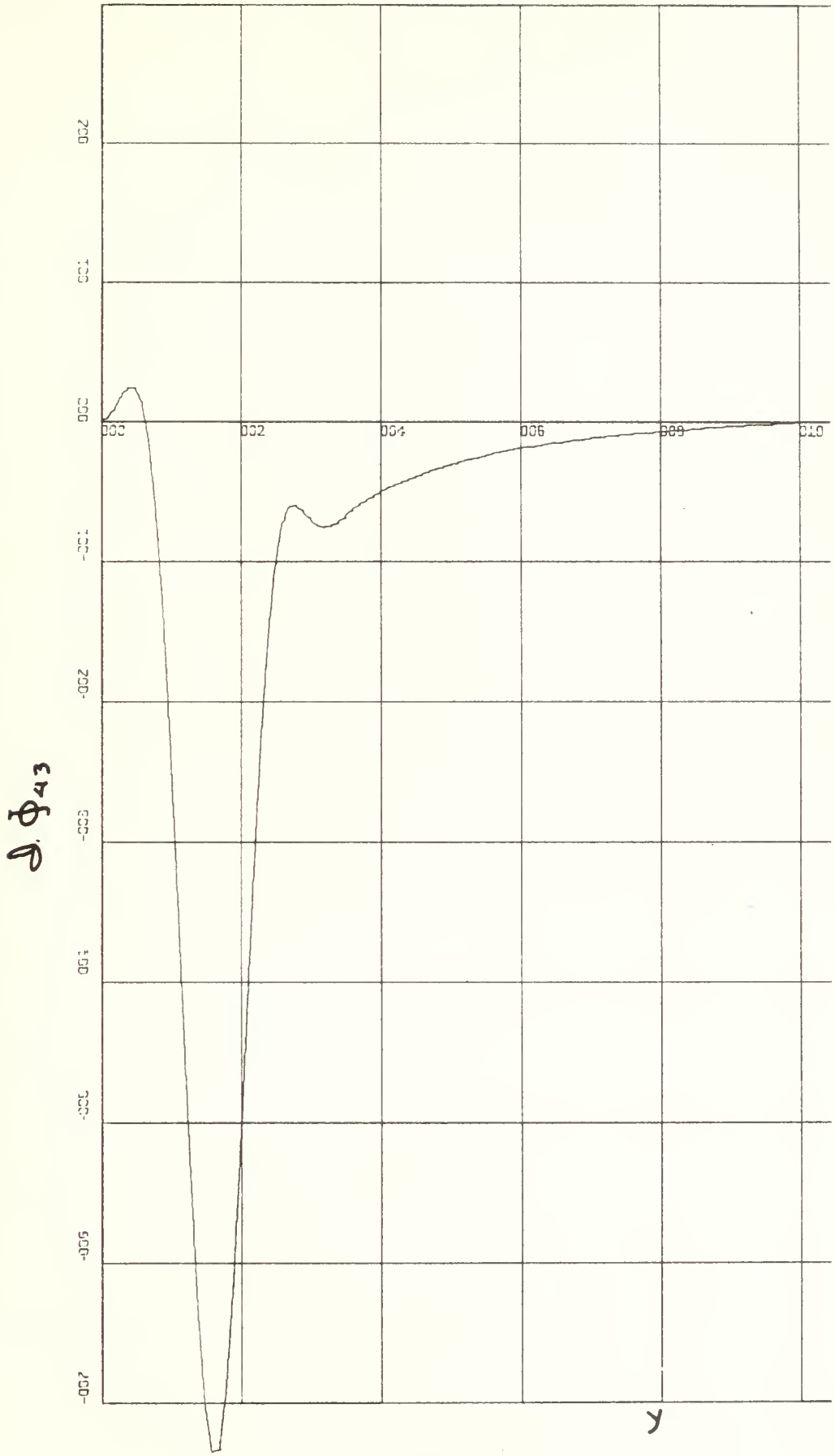


Φ_{42} Imaginary

Vertical Scale .1/division



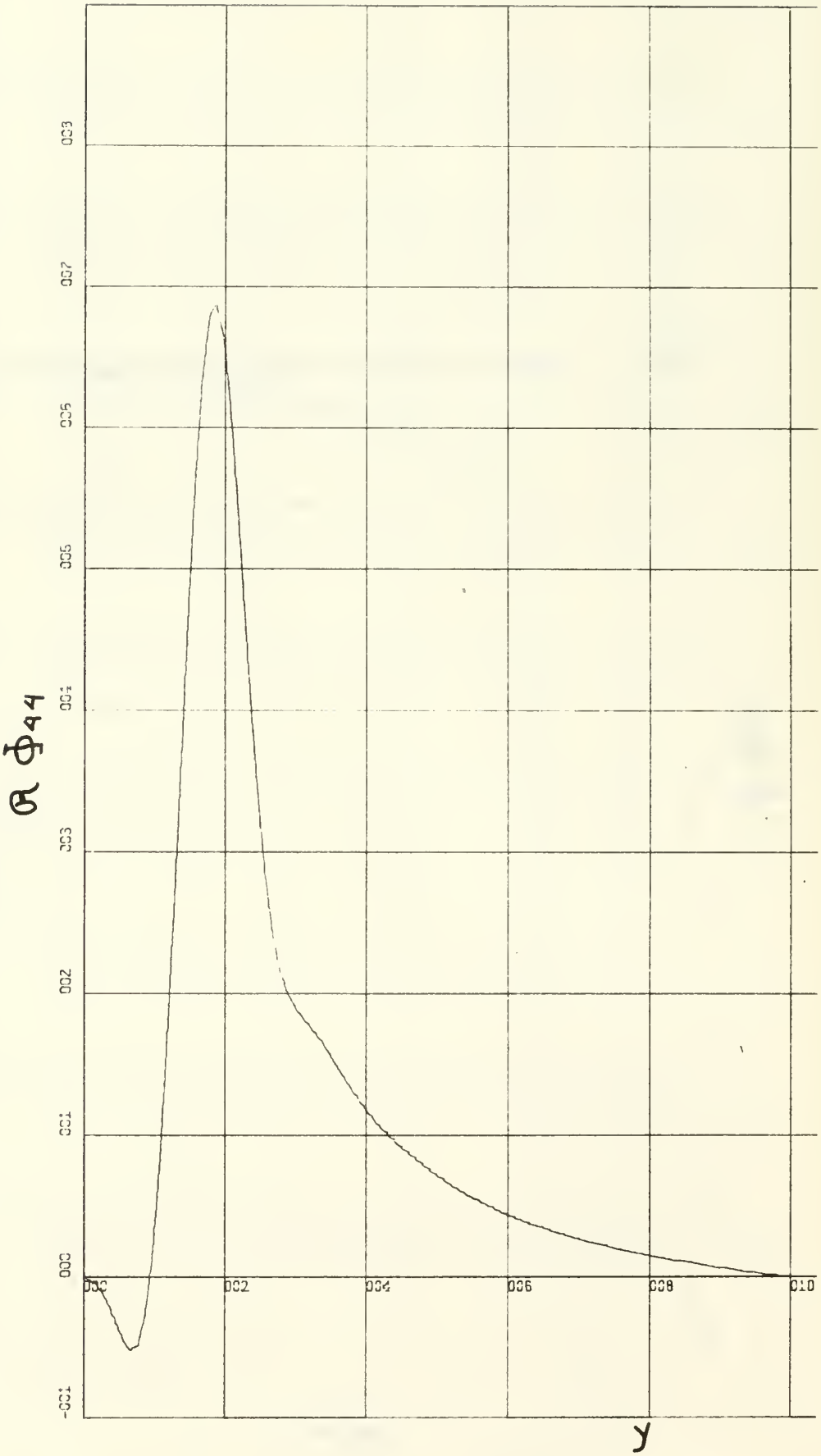
Φ_{43} Real



Φ_{43}

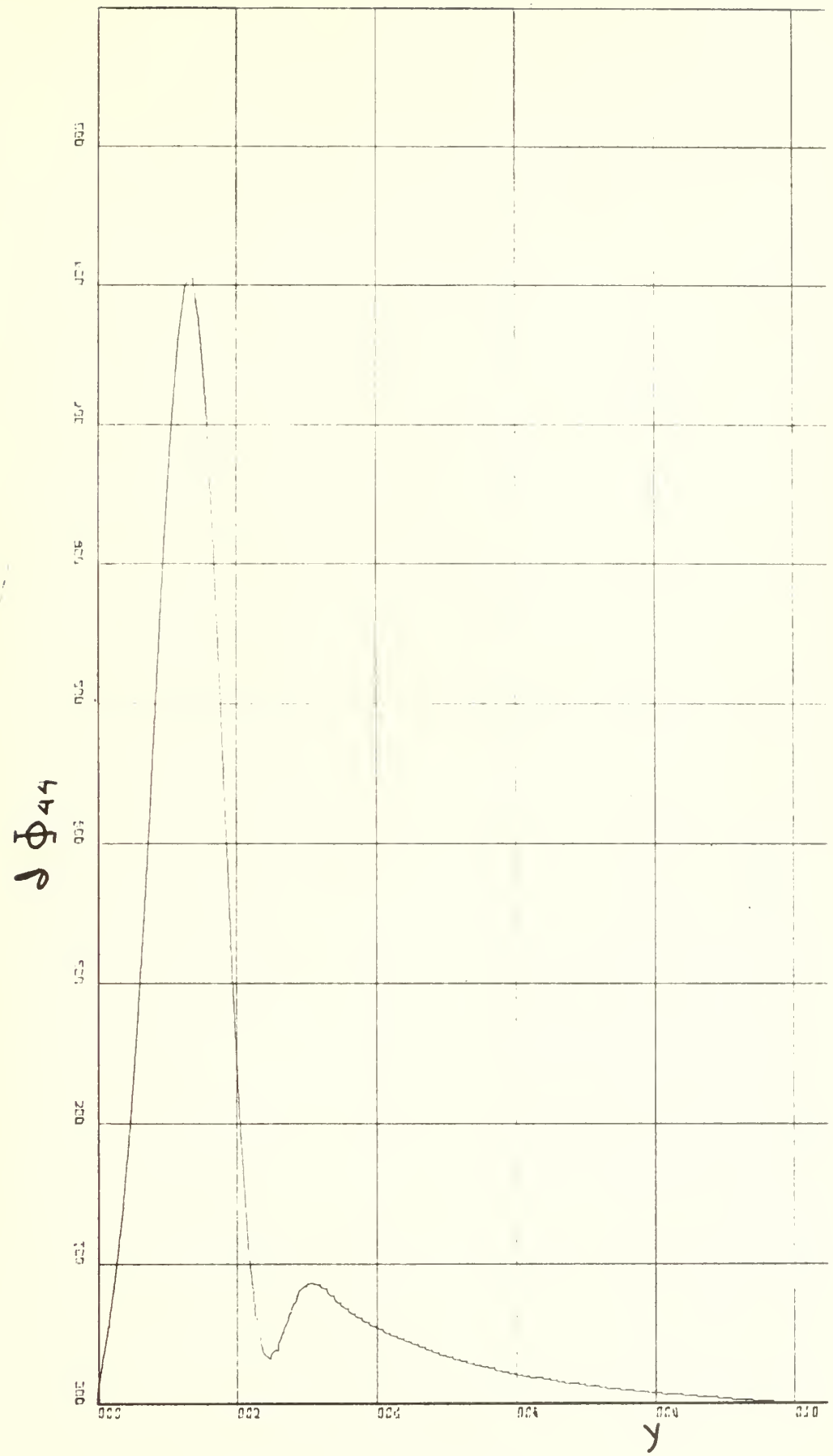
Imaginary

Vertical Scale .1/division



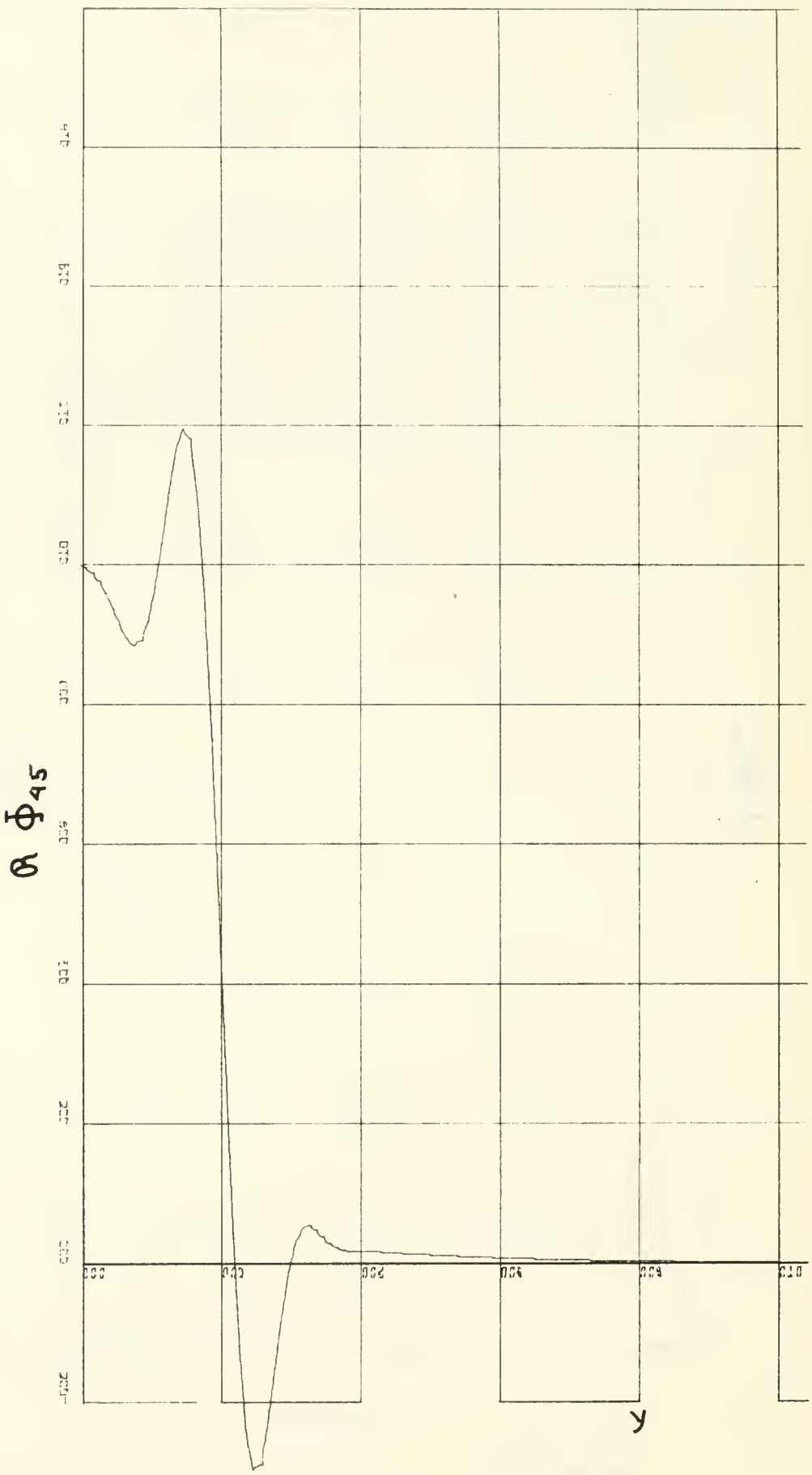
Φ_{44} Real

Vertical Scale .1/division

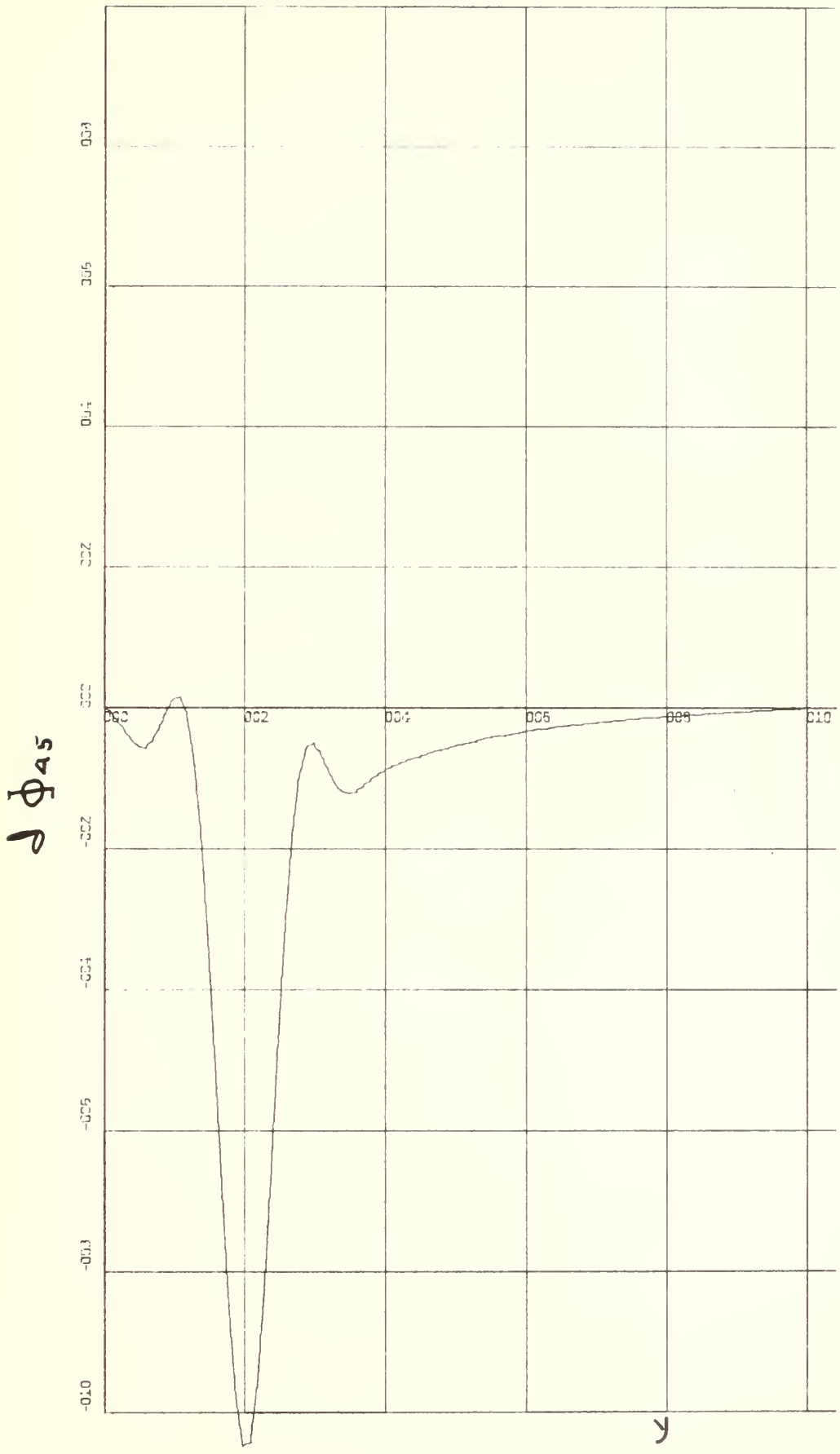


Φ_{44} Imaginary

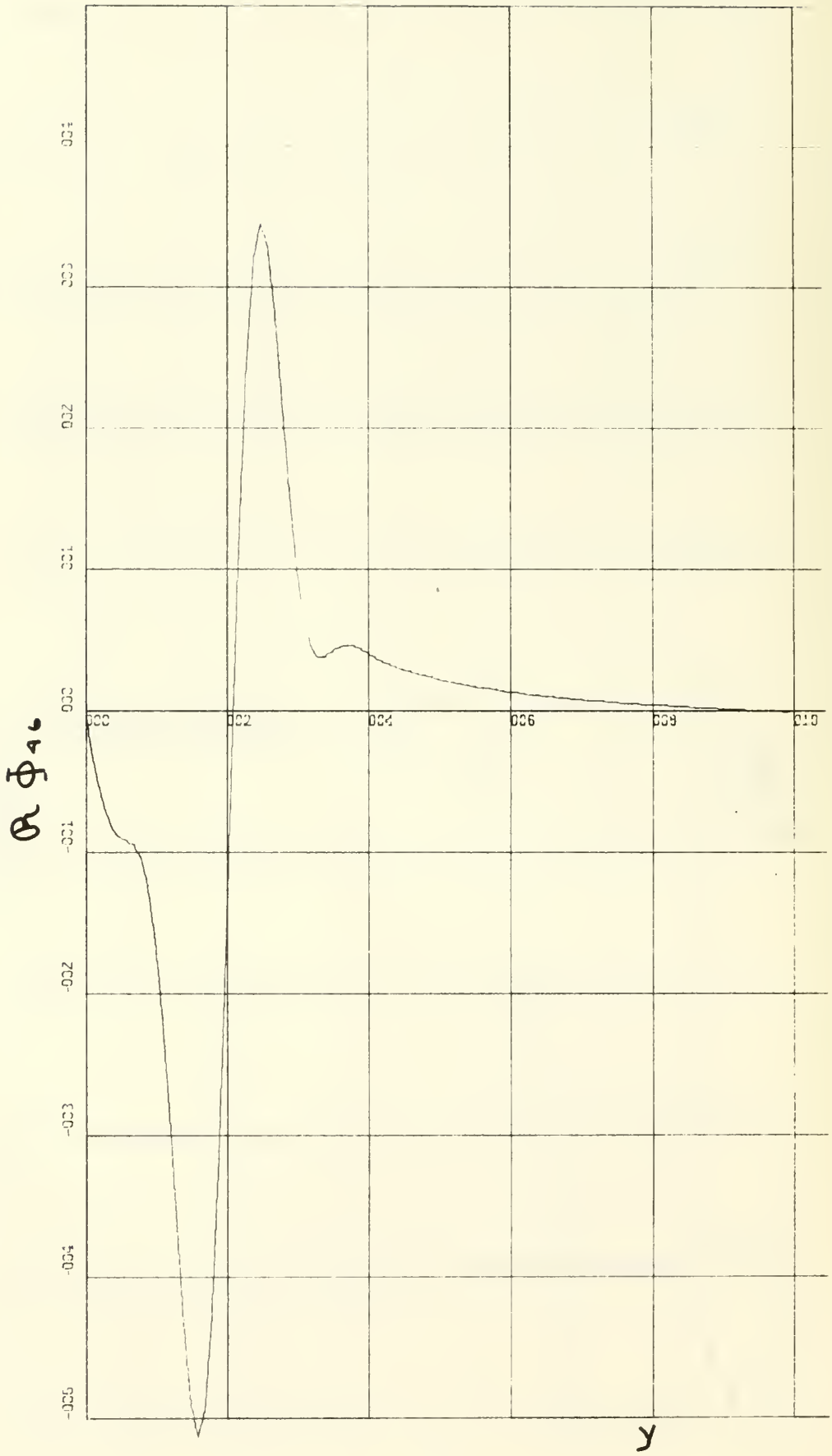
Vertical Scale .1/division



Φ_{45} Real

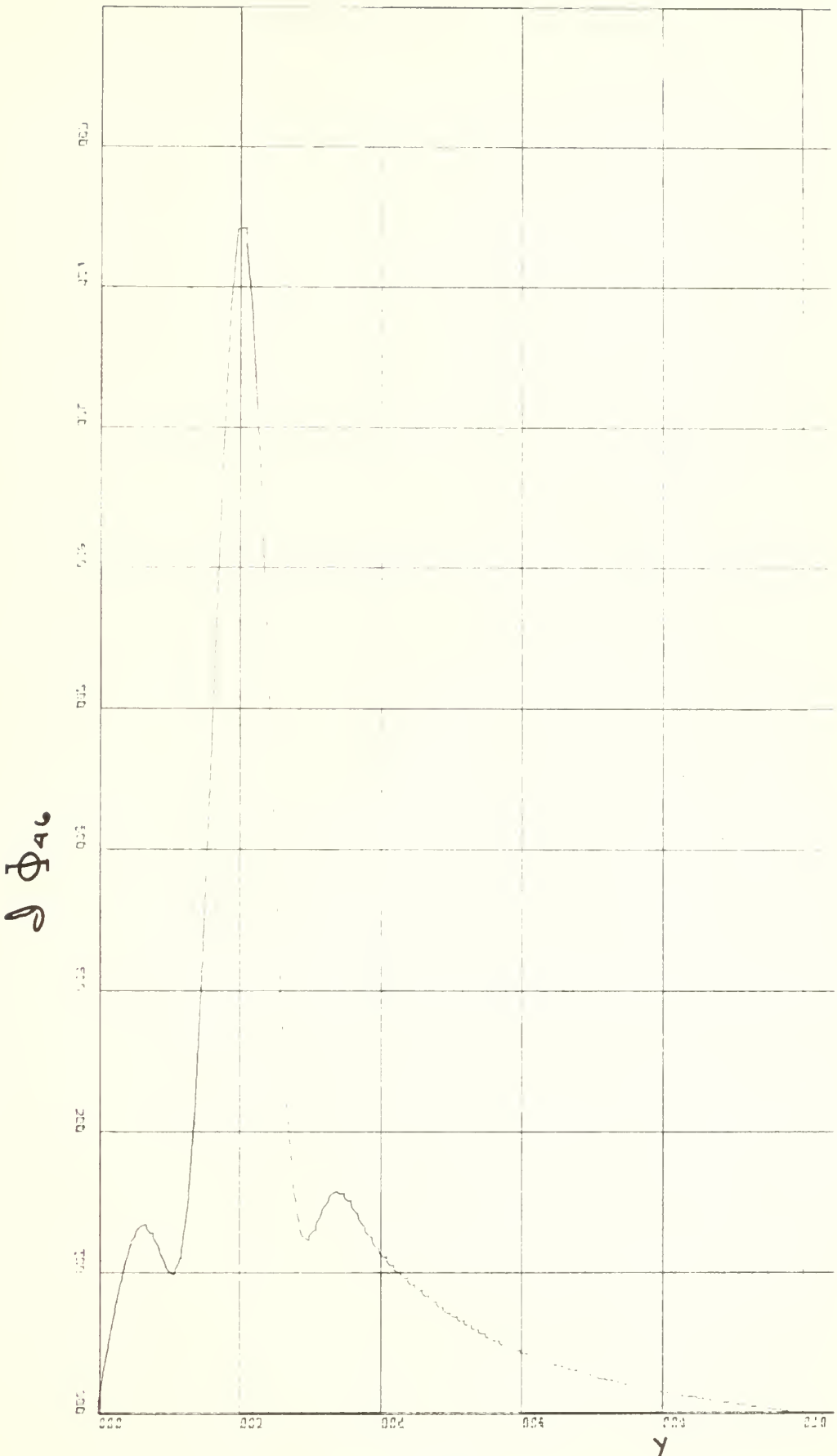


Φ_{45} Imaginary



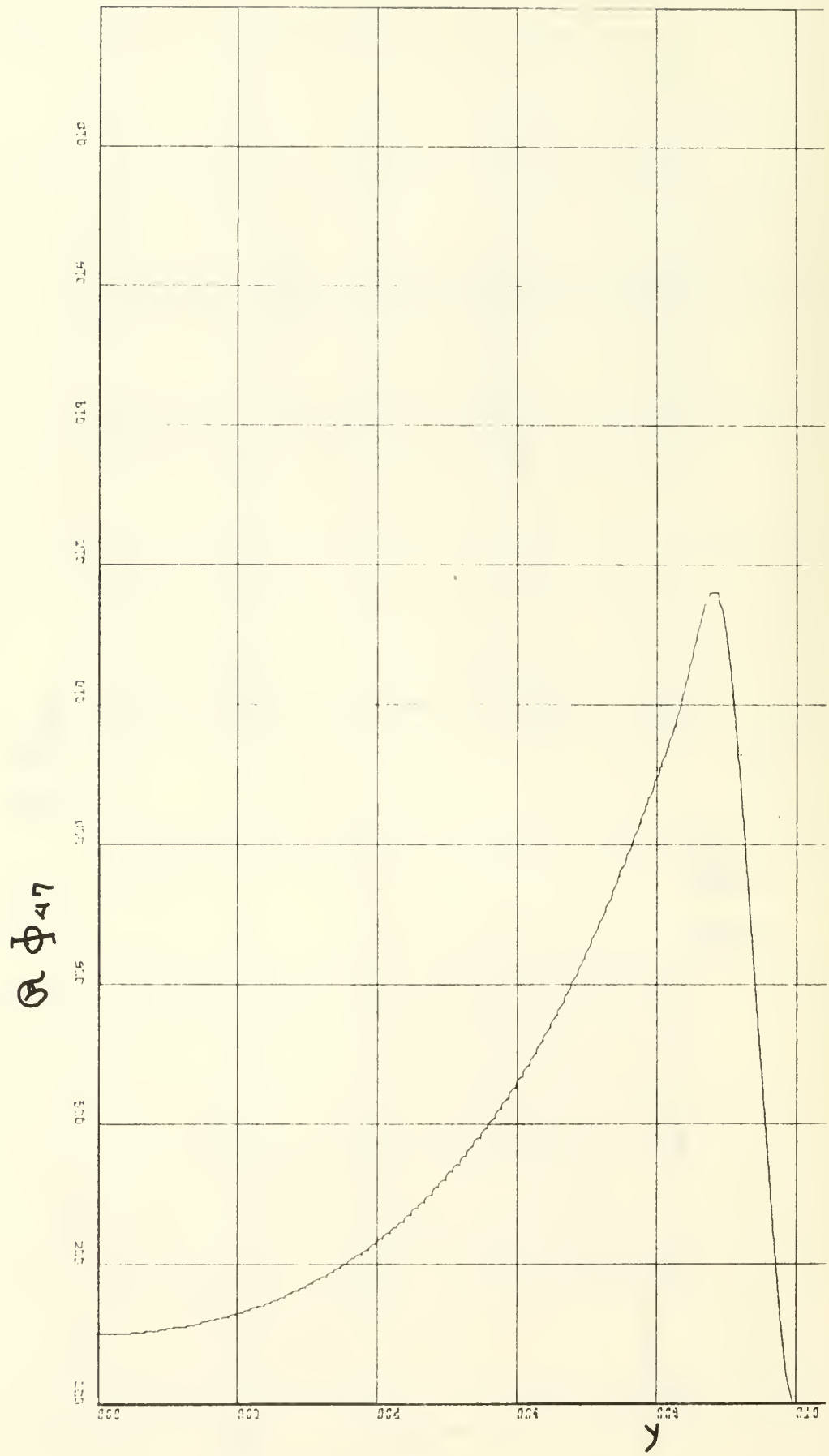
Φ_{46} Real

Vertical Scale .1/division



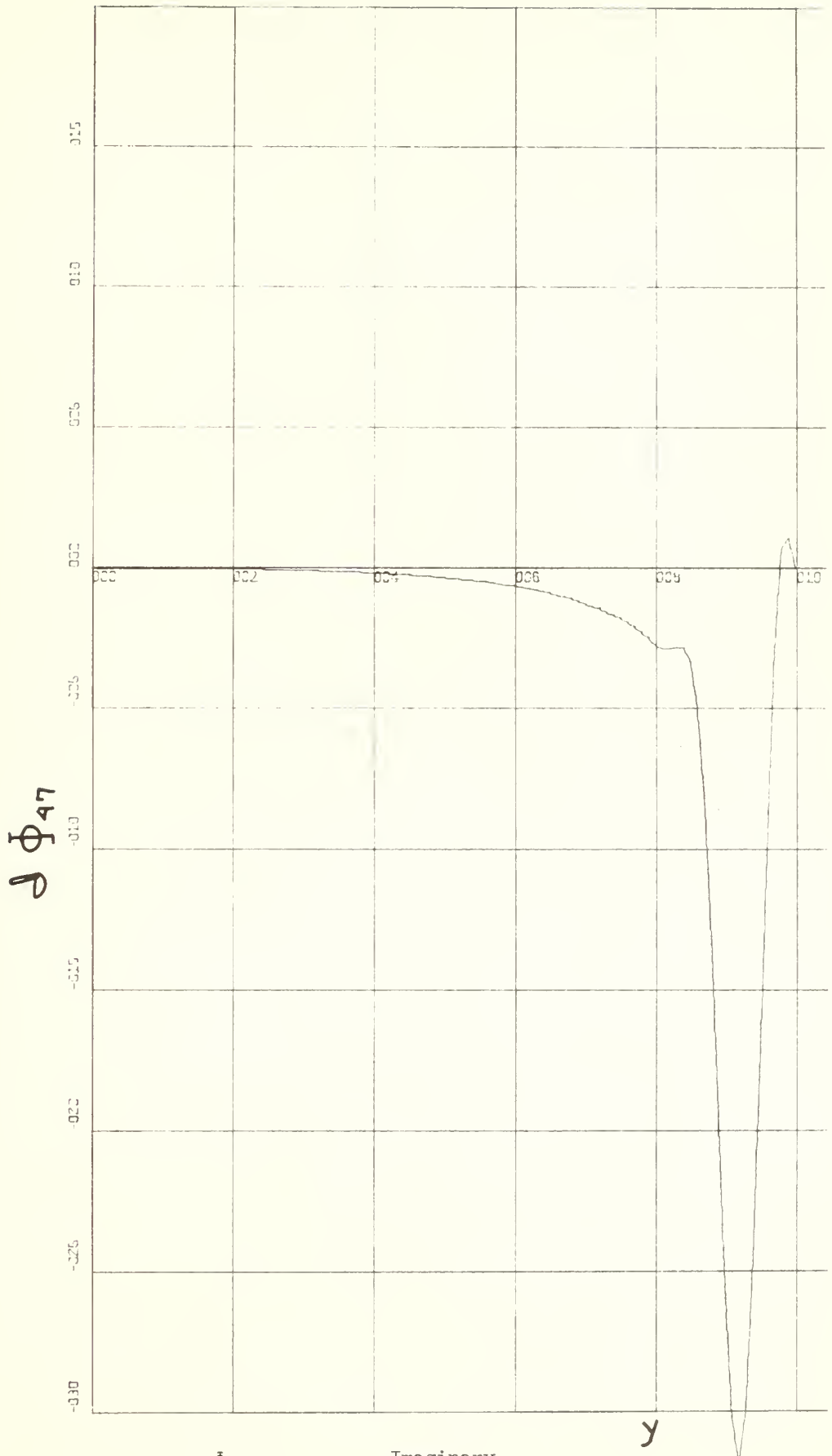
Φ_{46} Imaginary

Vertical Scale .1/division



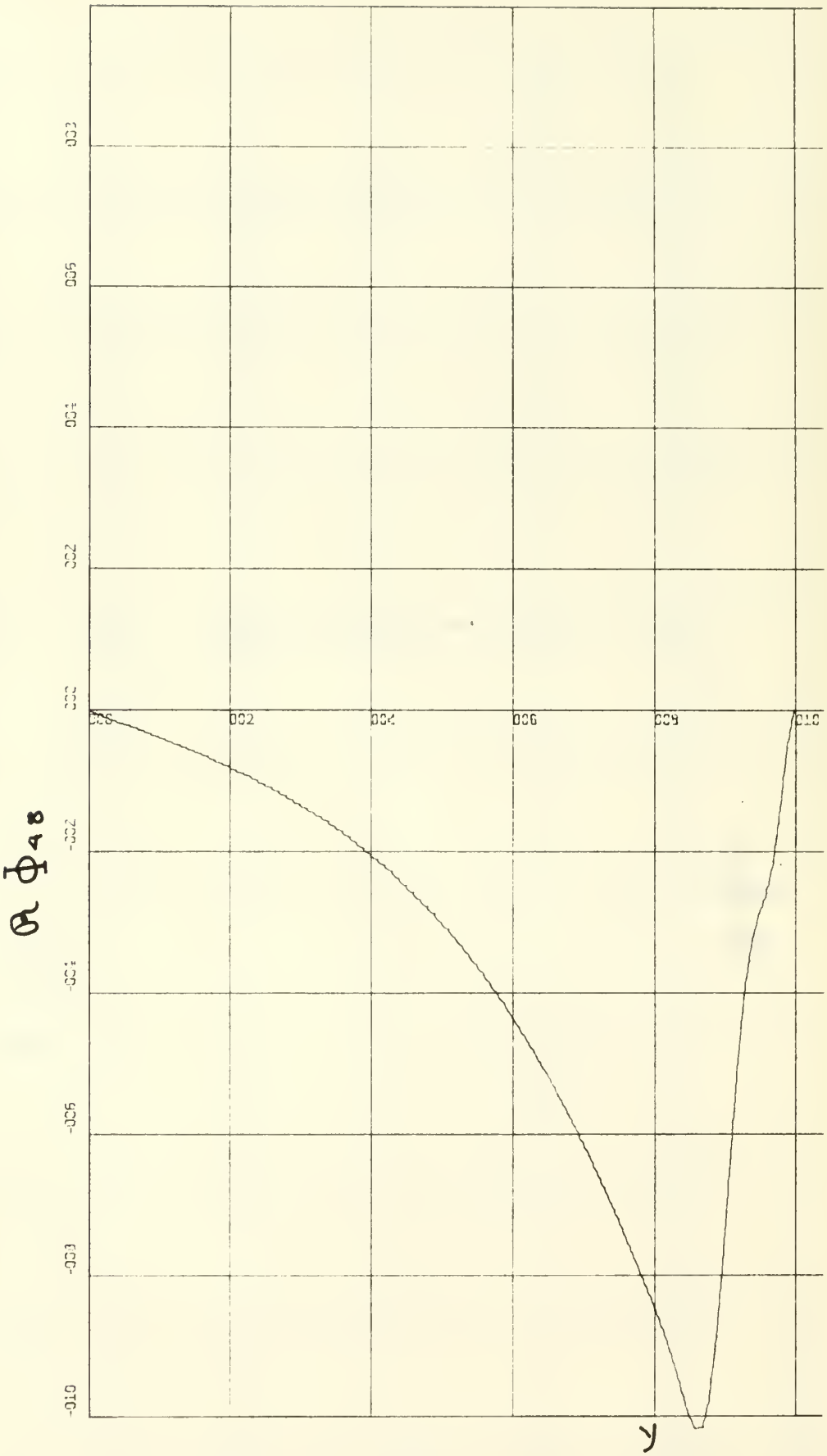
Φ_{47} Real

Vertical Scale 2/division

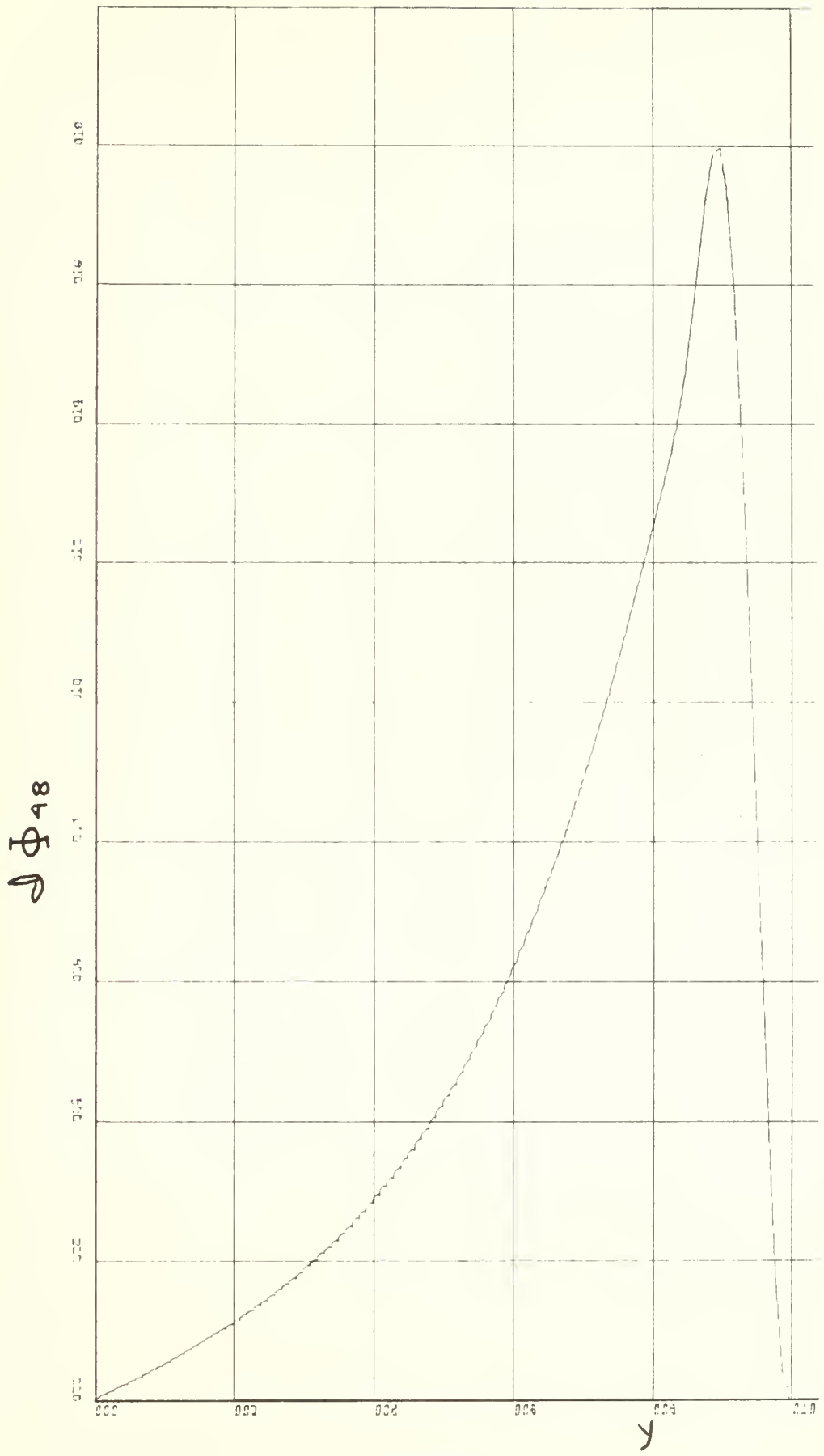


Φ_{47} Imaginary

Vertical Scale .5/division



Φ_{48} Real


Φ_{48}
y
Imaginary
Φ_{48}

Tables of χ_{nm} for α=1.0, R_e=6667

In the following tables is listed the function, χ_{nm}, (equations 27, 28a,b) which is orthogonal to the Φ_{nm}'s listed in the preceding tables.

The orthonormal relation (28) will be satisfied if the tabulated values are divided by the following constants. That is, the normalized χ_{nm}'s are χ_{nm}/D_{nm} where

D_{11} = -895.967 - i 491.967
D_{12} = 4.14022 - i 1.69171
D_{13} = 1.24036 - i .140046
D_{14} = .51857 + i .201294
D_{15} = -.0860462 + i .222086
D_{16} = -2.69901 + i 1.09821
D_{17} = 1.72832 - i .681564
D_{18} = .0146723 - i .0338435

D_{21} = 3.48679 - i 1.42098
D_{22} = -.613156 + i .891804
D_{23} = -2.24384 + i .881413
D_{24} = -.0947895 + i .321520
D_{25} = 2288.0 + i 31077.9
D_{26} = .271188 + i .263282
D_{27} = 1.43369 - i .530609
D_{28} = .0405460 + i .0349903

D_{31} = 3.14951 - i 1.28929
D_{32} = -.672661 - i .31757
D_{33} = -1.98645 + i .755785
D_{34} = .124914 + i .0515913
D_{35} = 198817. + i 519988.
D_{36} = .0986777 - i .412410
D_{37} = 1.25416 - i .438263
D_{38} = -.0266957 + i .0020907

D_{41} = 2.92095 - i 1.21663
D_{42} = -.418728 + i .915245
D_{43} = -1.77493 + i .675234
D_{44} = .00379124 + i .118033
D_{45} = 1.07579 - i .380188
D_{46} = .0177726 + i .0211108
D_{47} = 3201830. + i 5376040.
D_{48} = -.558907 + i .172329

ADJOINT FUNCTIONS, CHI $_{NM}$, FOR ALPHA=1.0, REY NUM=6667

	CHI 11			CHI 12	
	REAL	IMAGINARY	Y	REAL	IMAGINARY
0.	0.	0.	1.00	0.	0.
-.522719E 03	-.189293E 04	0.99	-.305937E-04	-.245540E-03
-.609039E 02	-.139790E 04	0.98	-.796509E-04	-.661022E-04
-.475292E 03	-.120256E 04	0.97	-.496907E-04	-.137141E-04
-.105471E 04	-.905254E 03	0.96	-.222761E-04	-.304042E-05
-.156915E 04	-.450462E 03	0.95	-.824757E-05	-.779915E-05
-.191455E 04	-.166323E 03	0.94	-.454942E-05	-.146776E-04
-.204443E 04	0.894884E 03	0.93	-.438074E-05	-.195332E-04
-.178820E 04	0.163929E 04	0.92	-.593208E-05	-.222925E-04
-.126663E 04	0.227825E 04	0.91	-.736005E-05	-.239028E-04
-.497958E 03	0.269274E 04	0.90	-.839968E-05	-.251465E-04
-.48925E 03	0.279448E 04	0.89	-.917226E-05	-.264270E-04
-.131472E 04	0.254821E 04	0.88	-.984705E-05	-.278819E-04
-.207408E 04	0.198178E 04	0.87	-.105370E-04	-.295257E-04
-.257204E 04	0.118153E 04	0.86	-.112974E-04	-.313389E-04
-.274032E 04	0.273958E 03	0.85	-.121511E-04	-.333065E-04
-.257250E 04	-.601144E 03	0.84	-.131091E-04	-.354295E-04
-.212086E 04	-.131925E 04	0.83	-.141794E-04	-.377253E-04
-.148121E 04	-.179422E 04	0.82	-.153646E-04	-.402253E-04
-.769800E 03	-.199096E 04	0.81	-.166530E-04	-.429676E-04
-.984921E 02	-.192565E 04	0.80	-.180080E-04	-.459818E-04
.445733E 03	-.165512E 04	0.79	-.193670E-04	-.492598E-04
.812858E 03	-.125931E 04	0.78	-.206645E-04	-.527171E-04
.992113E 03	-.822064E 03	0.77	-.218968E-04	-.561619E-04
.100573E 04	-.414845E 03	0.76	-.232344E-04	-.593060E-04
.897287E 03	-.864240E 02	0.75	-.251611E-04	-.618725E-04
.718397E 03	0.141374E 03	0.74	-.285713E-04	-.638484E-04
.517142E 03	0.265882E 03	0.73	-.346971E-04	-.658899E-04
.33[illegible]297E 03	0.306878E 03	0.72	-.447025E-04	-.697927E-04
.180067E 03	0.288481E 03	0.71	-.587903E-04	-.787875E-04
.747477E 02	0.236837E 03	0.70	-.748691E-04	-.972610E-04
.119665E 02	0.173940E 03	0.69	-.870135E-04	-.129410E-03
-.17[illegible]143E 02	0.115051E 03	0.68	-.845159E-04	-.176446E-03
-.232374E 02	0.683882E 02	0.67	-.526427E-04	-.232407E-03
-.170302E 02	0.363740E 02	0.66	0.235261E-04	-.279440E-03
-.630606E 01	0.175834E 02	0.65	0.151143E-03	-.284547E-03
.394568E 01	0.870159E 01	0.64	0.317625E-03	-.200843E-03
.113402E 02	0.605149E 01	0.63	0.476825E-03	0.231203E-04
.153630E 02	0.652965E 01	0.62	0.538164E-03	0.423191E-03
.165634E 02	0.799180E 01	0.61	0.366140E-03	0.988498E-03
.158926E 02	0.924465E 01	0.60	-.201170E-03	0.162386E-02
.142715E 02	0.982605E 01	0.59	-.130747E-02	0.211623E-02
.123831E 02	0.972497E 01	0.58	-.300572E-02	0.212148E-02
.106283E 02	0.913760E 01	0.57	-.516560E-02	0.119091E-02
.917508E 01	0.830094E 01	0.56	-.738094E-02	-.114522E-02
.804063E 01	0.740562E 01	0.55	-.890972E-02	-.522970E-02
.716839E 01	0.656865E 01	0.54	-.868655E-02	-.110762E-01
.648226E 01	0.584114E 01	0.53	-.544567E-02	-.181464E-01
.591620E 01	0.522980E 01	0.52	0.202246E-02	-.251644E-01
.542457E 01	0.471881E 01	0.51	0.144881E-01	-.300426E-01

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 11			CHI 12	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.498122E 01	0.428569E 01 *	0.50 *	0.318197E-01	-.299956E-01
0.457375E 01	0.391011E 01 *	0.49 *	0.525332E-01	-.218987E-01
0.419749E 01	0.357714E 01 *	0.48 *	0.734774E-01	-.290172E-02
0.385097E 01	0.327716E 01 *	0.47 *	0.897943E-01	0.287531E-01
0.353332E 01	0.300448E 01 *	0.46 *	0.952675E-01	0.728335E-01
0.324320E 01	0.275571E 01 *	0.45 *	0.831211E-01	0.126326E 00
0.297870E 01	0.252855E 01 *	0.44 *	0.472332E-01	0.182972E 00
0.273751E 01	0.232116E 01 *	0.43 *	-.163760E-01	0.233339E 00
0.251727E 01	0.213179E 01 *	0.42 *	-.108024E 00	0.265568E 00
0.231575E 01	0.195876E 01 *	0.41 *	-.223125E 00	0.266837E 00
0.213097E 01	0.180047E 01 *	0.40 *	-.351564E 00	0.225402E 00
0.196121E 01	0.165541E 01 *	0.39 *	-.477939E 00	0.132969E 00
0.180590E 01	0.152226E 01 *	0.38 *	-.582835E 00	-.130093E-01
0.166154E 01	0.139984E 01 *	0.37 *	-.645074E 00	-.207556E 00
0.152822E 01	0.128711E 01 *	0.36 *	-.644727E 00	-.437326E 00
0.140554E 01	0.118316E 01 *	0.35 *	-.566450E 00	-.681015E 00
0.129212E 01	0.108719E 01 *	0.34 *	-.402632E 00	-.911123E 00
0.118715E 01	0.998502E 00 *	0.33 *	-.155770E 00	-.109695E 01
0.108992E 01	0.916453E 00 *	0.32 *	0.160387E 00	-.120850E 01
0.999791E 00	0.840483E 00 *	0.31 *	0.521269E 00	-.122069E 01
0.916189E 00	0.770086E 00 *	0.30 *	0.893537E 00	-.111728E 01
0.838593E 00	0.704810E 00 *	0.29 *	0.123857E 01	-.893881E 00
0.766535E 00	0.644246E 00 *	0.28 *	0.151693E 01	-.559491E 00
0.699593E 00	0.588029E 00 *	0.27 *	0.169322E 01	-.136304E 00
0.637385E 00	0.535828E 00 *	0.26 *	0.174064E 01	0.342258E 00
0.579568E 00	0.487344E 00 *	0.25 *	0.164448E 01	0.835059E 00
0.525828E 00	0.442310E 00 *	0.24 *	0.140429E 01	0.129782E 01
0.475885E 00	0.400482E 00 *	0.23 *	0.103415E 01	0.168811E 01
0.429481E 00	0.361638E 00 *	0.22 *	0.561281E 00	0.197013E 01
0.386384E 00	0.325580E 00 *	0.21 *	0.230310E-01	0.211861E 01
0.346381E 00	0.292123E 00 *	0.20 *	-.537174E 00	0.212134E 01
0.309279E 00	0.261105E 00 *	0.19 *	-.107445E 01	0.198018E 01
0.274896E 00	0.232378E 00 *	0.18 *	-.154699E 01	0.171031E 01
0.243070E 00	0.205815E 00 *	0.17 *	-.191999E 01	0.133815E 01
0.213652E 00	0.181314E 00 *	0.16 *	-.216849E 01	0.898042E 00
0.186530E 00	0.158796E 00 *	0.15 *	-.227903E 01	0.428441E 00
0.161644E 00	0.138200E 00 *	0.14 *	-.224982E 01	-.321554E-01
0.139021E 00	0.119427E 00 *	0.13 *	-.208980E 01	-.448879E 00
0.118763E 00	0.102250E 00 *	0.12 *	-.181672E 01	-.793495E 00
0.100944E 00	0.861564E-01 *	0.11 *	-.145449E 01	-.104647E 01
0.852770E-01	0.722215E-01 *	0.10 *	-.103047E 01	-.119799E 01
0.714588E-01	0.532624E-01 *	0.09 *	-.572669E 00	-.124797E 01
0.533105E-01	0.347617E-01 *	0.08 *	-.107512E 00	-.120519E 01
0.283983E-01	0.172313E-01 *	0.07 *	0.341969E 00	-.108568E 01
-.100581E-01	0.103191E-01 *	0.06 *	0.756841E 00	-.910742E 00
-.608488E-01	0.352289E-01 *	0.05 *	0.112322E 01	-.704674E 00
-.995961E-01	0.123880E 00 *	0.04 *	0.143140E 01	-.492515E 00
-.543103E-01	0.300453E 00 *	0.03 *	0.167547E 01	-.297935E 00
0.213323E 00	0.526621E 00 *	0.02 *	0.185232E 01	-.141411E 00
0.879180E 00	0.596051E 00 *	0.01 *	0.196063E 01	-.387472E-01
0.100000E 01	-.401743E-16 *	0.0 *	0.100000E 01	0.417273E-17

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

CHI 13			CHI 14	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.139010E-03	-.356221E-03	* 0.99 *	-.362523E 00	0.541772E-02
-.144525E-03	-.689199E-04	* 0.98 *	-.276065E 00	-.943311E-01
-.798092E-04	-.172421E-05	* 0.97 *	-.208030E 00	-.228145E 00
-.346542E-04	0.392115E-05	* 0.96 *	-.869260E-01	-.362493E 00
-.153990E-04	-.852594E-05	* 0.95 *	0.920151E-01	-.456886E 00
-.116983E-04	-.204454E-04	* 0.94 *	0.314146E 00	-.472987E 00
-.140387E-04	-.276177E-04	* 0.93 *	0.544694E 00	-.383906E 00
-.174233E-04	-.311785E-04	* 0.92 *	0.734670E 00	-.183591E 00
-.201900E-04	-.330566E-04	* 0.91 *	0.832462E 00	0.107304E 00
-.222351E-04	-.345282E-04	* 0.90 *	0.798270E 00	0.442075E 00
-.238938E-04	-.361552E-04	* 0.89 *	0.617199E 00	0.756251E 00
-.254735E-04	-.380820E-04	* 0.88 *	0.306753E 00	0.982061E 00
-.271501E-04	-.402898E-04	* 0.87 *	-.841514E-01	0.106541E 01
-.289979E-04	-.427312E-04	* 0.86 *	-.485044E 00	0.980403E 00
-.310496E-04	-.453770E-04	* 0.85 *	-.820193E 00	0.737080E 00
-.332855E-04	-.482223E-04	* 0.84 *	-.102680E 01	0.379713E 00
-.357396E-04	-.512776E-04	* 0.83 *	-.106987E 01	-.238164E-01
-.384139E-04	-.545662E-04	* 0.82 *	-.949692E 00	-.398553E 00
-.413249E-04	-.580876E-04	* 0.81 *	-.699889E 00	-.680094E 00
-.444961E-04	-.618731E-04	* 0.80 *	-.377367E 00	-.828430E 00
-.479630E-04	-.659248E-04	* 0.79 *	-.472760E-01	-.834548E 00
-.517810E-04	-.702513E-04	* 0.78 *	0.232404E 00	-.718743E 00
-.560333E-04	-.748738E-04	* 0.77 *	0.422578E 00	-.522047E 00
-.608294E-04	-.798508E-04	* 0.76 *	0.508495E 00	-.293962E 00
-.662857E-04	-.853070E-04	* 0.75 *	0.498508E 00	-.802382E-01
-.724757E-04	-.914557E-04	* 0.74 *	0.417631E 00	0.861889E-01
-.793475E-04	-.985881E-04	* 0.73 *	0.298512E 00	0.189395E 00
-.866258E-04	-.106994E-03	* 0.72 *	0.172660E 00	0.229773E 00
-.937449E-04	-.116785E-03	* 0.71 *	0.640486E-01	0.219723E 00
-.998954E-04	-.127616E-03	* 0.70 *	-.138807E-01	0.177694E 00
-.104286E-03	-.138367E-03	* 0.69 *	-.579606E-01	0.122478E 00
-.106703E-03	-.146921E-03	* 0.68 *	-.727547E-01	0.691023E-01
-.108371E-03	-.150280E-03	* 0.67 *	-.670244E-01	0.268639E-01
-.112941E-03	-.145303E-03	* 0.66 *	-.503820E-01	-.691869E-03
-.127225E-03	-.130281E-03	* 0.65 *	-.308947E-01	-.144166E-01
-.161048E-03	-.107360E-03	* 0.64 *	-.139059E-01	-.177158E-01
-.225500E-03	-.854125E-04	* 0.63 *	-.193330E-02	-.147674E-01
-.328979E-03	-.823954E-04	* 0.62 *	0.472872E-02	-.926322E-02
-.470951E-03	-.125721E-03	* 0.61 *	0.712188E-02	-.377330E-02
-.634253E-03	-.248867E-03	* 0.60 *	0.678790E-02	0.355079E-03
-.777997E-03	-.482723E-03	* 0.59 *	0.517278E-02	0.275729E-02
-.834309E-03	-.841193E-03	* 0.58 *	0.332064E-02	0.367649E-02
-.712852E-03	-.130248E-02	* 0.57 *	0.180881E-02	0.360905E-02
-.316706E-03	-.178990E-02	* 0.56 *	0.832216E-03	0.305313E-02
0.428658E-03	-.215872E-02	* 0.55 *	0.345832E-03	0.237845E-02
0.153506E-02	-.219688E-02	* 0.54 *	0.199759E-03	0.179436E-02
0.290635E-02	-.164763E-02	* 0.53 *	0.234129E-03	0.137702E-02
0.429952E-02	-.258765E-03	* 0.52 *	0.327897E-03	0.111889E-02
0.530692E-02	0.214211E-02	* 0.51 *	0.411353E-03	0.975500E-03

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 13			CHI 14	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.537518E-02	0.555540E-02 *	0.50 *	0.457583E-03	0.897740E-03
0.387229E-02	0.971784E-02 *	0.49 *	0.466355E-03	0.848105E-03
0.2[illegible]6158E-03	0.14[illegible]359E-01 *	0.48 *	0.449139E-03	0.804726E-03
-0.6[illegible]1484E-02	0.175719E-01 *	0.47 *	0.419018E-03	0.758625E-03
-0.148030E-01	0.191059E-01 *	0.46 *	0.385816E-03	0.708727E-03
-0.256303E-01	0.172868E-01 *	0.45 *	0.354947E-03	0.657367E-03
-0.373289E-01	0.108672E-01 *	0.44 *	0.328350E-03	0.607379E-03
-0.480948E-01	-0.100555E-02 *	0.43 *	0.305873E-03	0.560749E-03
-0.556237E-01	-0.184863E-01 *	0.42 *	0.286559E-03	0.518348E-03
-0.573875E-01	-0.407810E-01 *	0.41 *	0.269399E-03	0.480202E-03
-0.510285E-01	-0.660099E-01 *	0.40 *	0.253662E-03	0.445881E-03
-0.348218E-01	-0.912408E-01 *	0.39 *	0.238933E-03	0.414820E-03
-0.812893E-02	-0.112721E 00 *	0.38 *	0.225031E-03	0.386499E-03
0.282432E-01	-0.126304E 00 *	0.37 *	0.211896E-03	0.360508E-03
0.718628E-01	-0.128026E 00 *	0.36 *	0.199515E-03	0.336547E-03
0.118733E 00	-0.114756E 00 *	0.35 *	0.187873E-03	0.314393E-03
0.163617E 00	-0.848114E-01 *	0.34 *	0.176940E-03	0.293875E-03
0.200694E 00	-0.384349E-01 *	0.33 *	0.166673E-03	0.274844E-03
0.223859E 00	0.219673E-01 *	0.32 *	0.157025E-03	0.257170E-03
0.228435E 00	0.918854E-01 *	0.31 *	0.147945E-03	0.240730E-03
0.211044E 00	0.165081E 00 *	0.30 *	0.139386E-03	0.225413E-03
0.170650E 00	0.234244E 00 *	0.29 *	0.131307E-03	0.211118E-03
0.118790E 00	0.291839E 00 *	0.28 *	0.123669E-03	0.197752E-03
0.295597E-01	0.331037E 00 *	0.27 *	0.116439E-03	0.185230E-03
-0.607442E-01	0.346587E 00 *	0.26 *	0.109585E-03	0.173480E-03
-0.154275E 00	0.335502E 00 *	0.25 *	0.103079E-03	0.162432E-03
-0.242501E 00	0.297480E 00 *	0.24 *	0.968943E-04	0.152026E-03
-0.317158E 00	0.234969E 00 *	0.23 *	0.910068E-04	0.142206E-03
-0.371161E 00	0.152906E 00 *	0.22 *	0.853937E-04	0.132923E-03
-0.399365E 00	0.581528E-01 *	0.21 *	0.800340E-04	0.124130E-03
-0.399061E 00	-0.412813E-01 *	0.20 *	0.749080E-04	0.115786E-03
-0.370188E 00	-0.137125E 00 *	0.19 *	0.699976E-04	0.107852E-03
-0.315224E 00	-0.221719E 00 *	0.18 *	0.652858E-04	0.100292E-03
-0.238811E 00	-0.288771E 00 *	0.17 *	0.607566E-04	0.930748E-04
-0.147168E 00	-0.333918E 00 *	0.16 *	0.563953E-04	0.861696E-04
-0.473924E-01	-0.355039E 00 *	0.15 *	0.521879E-04	0.795488E-04
0.532664E-01	-0.352298E 00 *	0.14 *	0.481214E-04	0.731866E-04
0.148067E 00	-0.327960E 00 *	0.13 *	0.441836E-04	0.670588E-04
0.231308E 00	-0.285996E 00 *	0.12 *	0.403630E-04	0.611426E-04
0.298680E 00	-0.231566E 00 *	0.11 *	0.366483E-04	0.554163E-04
0.347436E 00	-0.170433E 00 *	0.10 *	0.330279E-04	0.498592E-04
0.376372E 00	-0.108384E 00 *	0.09 *	0.294893E-04	0.444524E-04
0.385664E 00	-0.507073E-01 *	0.08 *	0.260192E-04	0.391802E-04
0.376599E 00	-0.177525E-02 *	0.07 *	0.226056E-04	0.340328E-04
0.351251E 00	0.352550E-01 *	0.06 *	0.192399E-04	0.290081E-04
0.312148E 00	0.586040E-01 *	0.05 *	0.159334E-04	0.241092E-04
0.261983E 00	0.679075E-01 *	0.04 *	0.127234E-04	0.193305E-04
0.2[illegible]3388E 00	0.641422E-01 *	0.03 *	0.968082E-05	0.146237E-04
0.138797E 00	0.494592E-01 *	0.02 *	0.688137E-05	0.984156E-05
0.703956E-01	0.269469E-01 *	0.01 *	0.430468E-05	0.468462E-05
0.0	0.0 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

CHI 15			CHI 16	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.495859E-04	-.146096E-03	* 0.99 *	0.823064E-04	-.562114E-04
-.586693E-04	-.311889E-04	* 0.98 *	0.923105E-05	-.419339E-04
-.339839E-04	-.188265E-05	* 0.97 *	-.472919E-05	-.214880E-04
-.153022E-04	0.169999E-05	* 0.96 *	-.371957E-05	-.923698E-05
-.681893E-05	-.307196E-05	* 0.95 *	0.723899E-06	-.478284E-05
-.496127E-05	-.811611E-05	* 0.94 *	0.418904E-05	-.450060E-05
-.588041E-05	-.112939E-04	* 0.93 *	0.601038E-05	-.562223E-05
-.738575E-05	-.129026E-04	* 0.92 *	0.675045E-05	-.683403E-05
-.867540E-05	-.137239E-04	* 0.91 *	0.703086E-05	-.777289E-05
-.965529E-05	-.143242E-04	* 0.90 *	0.721583E-05	-.848419E-05
-.104589E-04	-.149724E-04	* 0.89 *	0.744888E-05	-.911103E-05
-.112267E-04	-.157475E-04	* 0.88 *	0.776721E-05	-.977432E-05
-.12 454E-04	-.166485E-04	* 0.87 *	0.819187E-05	-.105431E-04
-.129532E-04	-.176574E-04	* 0.86 *	0.877106E-05	-.114232E-04
-.139586E-04	-.187627E-04	* 0.85 *	0.957298E-05	-.123333E-04
-.150548E-04	-.199592E-04	* 0.84 *	0.106213E-04	-.130788E-04
-.162296E-04	-.212378E-04	* 0.83 *	0.117710E-04	-.133672E-04
-.174772E-04	-.225729E-04	* 0.82 *	0.125551E-04	-.129333E-04
-.188187E-04	-.239159E-04	* 0.81 *	0.120954E-04	-.118396E-04
-.203304E-04	-.252069E-04	* 0.80 *	0.925319E-05	-.109462E-04
-.221716E-04	-.264158E-04	* 0.79 *	0.323486E-05	-.123940E-04
-.245839E-04	-.276201E-04	* 0.78 *	-.520954E-05	-.197149E-04
-.278262E-04	-.291050E-04	* 0.77 *	-.121489E-04	-.369692E-04
-.320097E-04	-.314380E-04	* 0.76 *	-.908170E-05	-.662936E-04
-.368266E-04	-.354299E-04	* 0.75 *	0.168521E-04	-.103656E-03
-.412372E-04	-.418705E-04	* 0.74 *	0.792355E-04	-.133649E-03
-.432836E-04	-.509509E-04	* 0.73 *	0.183747E-03	-.125774E-03
-.402967E-04	-.613995E-04	* 0.72 *	0.314543E-03	-.363963E-04
-.298026E-04	-.695631E-04	* 0.71 *	0.418813E-03	0.178610E-03
-.113179E-04	-.689418E-04	* 0.70 *	0.397074E-03	0.536891E-03
0.111164E-04	-.509175E-04	* 0.69 *	0.110787E-03	0.989562E-03
0.263692E-04	-.744015E-05	* 0.68 *	-.579926E-03	0.137793E-02
0.149965E-04	0.639402E-04	* 0.67 *	-.174058E-02	0.140757E-02
-.487782E-04	0.153202E-03	* 0.66 *	-.325380E-02	0.669051E-03
-.190084E-03	0.231007E-03	* 0.65 *	-.470419E-02	-.126440E-02
-.426635E-03	0.245221E-03	* 0.64 *	-.530683E-02	-.464551E-02
-.721492E-03	0.125127E-03	* 0.63 *	-.394759E-02	-.928224E-02
-.102570E-02	-.202698E-03	* 0.62 *	0.597464E-03	-.142485E-01
-.120814E-02	-.785157E-03	* 0.61 *	0.922768E-02	-.176879E-01
-.109195E-02	-.160291E-02	* 0.60 *	0.218994E-01	-.168553E-01
-.479759E-03	-.252907E-02	* 0.59 *	0.369483E-01	-.853950E-02
0.786435E-03	-.330118E-02	* 0.58 *	0.505768E-01	0.100586E-01
0.274190E-02	-.352491E-02	* 0.57 *	0.567937E-01	0.400425E-01
0.520870E-02	-.272605E-02	* 0.56 *	0.480862E-01	0.793619E-01
0.772550E-02	-.459143E-03	* 0.55 *	0.169859E-01	0.121586E 00
0.953140E-02	0.353476E-02	* 0.54 *	-.415371E-01	0.155438E 00
0.963499E-02	0.914801E-02	* 0.53 *	-.127222E 00	0.165604E 00
0.698619E-02	0.157500E-01	* 0.52 *	-.231889E 00	0.135145E 00
0.743015E-03	0.221117E-01	* 0.51 *	-.337914E 00	0.494760E-01

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 15			CHI 16	
REAL	IMAGINARY	Y	REAL	IMAGINARY
-.940599E-02	0.264659E-01 *	0.50 *	-.418713E 00	-.986236E-01
-.229337E-01	0.267374E-01 *	0.49 *	-.441837E 00	-.303984E 00
-.382705E-01	0.209414E-01 *	0.48 *	-.374778E 00	-.545391E 00
-.527933E-01	0.769814E-02 *	0.47 *	-.192820E 00	-.784712E 00
-.630704E-01	-.132307E-01 *	0.46 *	0.112440E 00	-.969921E 00
-.653750E-01	-.405148E-01 *	0.45 *	0.525880E 00	-.104235E 01
-.564132E-01	-.710701E-01 *	0.44 *	0.100505E 01	-.947551E 00
-.341461E-01	-.100220E 00 *	0.43 *	0.148150E 01	-.648071E 00
0.146216E-02	-.122246E 00 *	0.42 *	0.186823E 01	-.135581E 00
0.479576E-01	-.131281E 00 *	0.41 *	0.207262E 01	0.560494E 00
0.100327E 00	-.122423E 00 *	0.40 *	0.201332E 01	0.137044E 01
0.151436E 00	-.928556E-01 *	0.39 *	0.163787E 01	0.218941E 01
0.192956E 00	-.427445E-01 *	0.38 *	0.937656E 00	0.289044E 01
0.216673E 00	0.242997E-01 *	0.37 *	-.433849E-01	0.334361E 01
0.215939E 00	0.101351E 00 *	0.36 *	-.120881E 01	0.343848E 01
0.187020E 00	0.178923E 00 *	0.35 *	-.241942E 01	0.310545E 01
0.130049E 00	0.246263E 00 *	0.34 *	-.351168E 01	0.233202E 01
0.493856E-01	0.292986E 00 *	0.33 *	-.432212E 01	0.117038E 01
-.467247E-01	0.310761E 00 *	0.32 *	-.471351E 01	-.265618E 00
-.147178E 00	0.294762E 00 *	0.31 *	-.459812E 01	-.181416E 01
-.239554E 00	0.244587E 00 *	0.30 *	-.395386E 01	-.328773E 01
-.311929E 00	0.164503E 00 *	0.29 *	-.283020E 01	-.450030E 01
-.354641E 00	0.629406E-01 *	0.28 *	-.134286E 01	-.529477E 01
-.361718E 00	-.486696E-01 *	0.27 *	0.342004E 00	-.556610E 01
-.331731E 00	-.157512E 00 *	0.26 *	0.203125E 01	-.527630E 01
-.267951E 00	-.251189E 00 *	0.25 *	0.353190E 01	-.445893E 01
-.177794E 00	-.319415E 00 *	0.24 *	0.467751E 01	-.321287E 01
-.716967E-01	-.355328E 00 *	0.23 *	0.534961E 01	-.168674E 01
0.383978E-01	-.356254E 00 *	0.22 *	0.549113E 01	-.569177E-01
0.140665E 00	-.323829E 00 *	0.21 *	0.511041E 01	0.149714E 01
0.224895E 00	-.263504E 00 *	0.20 *	0.427578E 01	0.281619E 01
0.283649E 00	-.183577E 00 *	0.19 *	0.310239E 01	0.377999E 01
0.312933E 00	-.939113E-01 *	0.18 *	0.173395E 01	0.431903E 01
0.312345E 00	-.457618E-02 *	0.17 *	0.322546E 00	0.441845E 01
0.284741E 00	0.754025E-01 *	0.16 *	-.990393E 00	0.411430E 01
0.235515E 00	0.139016E 00 *	0.15 *	-.208941E 01	0.348363E 01
0.171658E 00	0.181874E 00 *	0.14 *	-.289505E 01	0.263049E 01
0.100740E 00	0.202404E 00 *	0.13 *	-.336792E 01	0.167033E 01
0.299775E-01	0.201674E 00 *	0.12 *	-.350718E 01	0.715087E 00
-.345013E-01	0.182924E 00 *	0.11 *	-.334449E 01	-.139364E 00
-.881386E-01	0.150902E 00 *	0.10 *	-.293510E 01	-.821943E 00
-.128143E 00	0.111128E 00 *	0.09 *	-.234766E 01	-.129098E 01
-.153432E 00	0.691724E-01 *	0.08 *	-.165449E 01	-.153476E 01
-.164378E 00	0.300423E-01 *	0.07 *	-.923388E 00	-.156863E 01
-.162425E 00	-.228516E-02 *	0.06 *	-.211933E 00	-.142963E 01
-.149667E 00	-.251507E-01 *	0.05 *	0.435515E 00	-.116952E 01
-.128446E 00	-.373327E-01 *	0.04 *	0.988288E 00	-.847393E 00
-.101037E 00	-.390135E-01 *	0.03 *	0.142783E 01	-.522452E 00
-.694423E-01	-.316247E-01 *	0.02 *	0.174480E 01	-.247677E 00
-.353214E-01	-.176022E-01 *	0.01 *	0.193575E 01	-.646859E-01
0.0	0.0 *	0.0 *	0.100000E 01	0.351743E-16

ADJOINT FUNCTIONS, CHI_{NM}, FOR ALPHA=1.0, REY NUM=6667

CHI 17 REAL	CHI 17 IMAGINARY	Y	CHI 18 REAL	CHI 18 IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.149613E-03	-.254131E-03	* 0.99 *	0.519772E-04	-.143227E-04
-.125416E-03	-.362563E-04	* 0.98 *	0.123824E-04	-.204269E-04
-.677538E-04	0.111098E-04	* 0.97 *	0.126969E-05	-.125081E-04
-.300712E-04	0.112877E-04	* 0.96 *	-.562425E-06	-.585981E-05
-.151243E-04	-.134295E-05	* 0.95 *	0.951981E-06	-.261215E-05
-.134449E-04	-.121971E-04	* 0.94 *	0.278383E-05	-.179452E-05
-.166968E-04	-.182764E-04	* 0.93 *	0.400378E-05	-.208381E-05
-.205113E-04	-.208824E-04	* 0.92 *	0.463702E-05	-.265323E-05
-.234665E-04	-.218203E-04	* 0.91 *	0.494892E-05	-.316972E-05
-.255912E-04	-.221668E-04	* 0.90 *	0.515670E-05	-.357820E-05
-.274523E-04	-.222765E-04	* 0.89 *	0.537680E-05	-.392448E-05
-.298071E-04	-.222162E-04	* 0.88 *	0.565604E-05	-.426173E-05
-.334683E-04	-.222908E-04	* 0.87 *	0.600892E-05	-.461524E-05
-.390176E-04	-.235037E-04	* 0.86 *	0.643408E-05	-.497543E-05
-.461301E-04	-.277256E-04	* 0.85 *	0.690763E-05	-.530540E-05
-.525495E-04	-.371711E-04	* 0.84 *	0.736266E-05	-.556444E-05
-.532168E-04	-.527270E-04	* 0.83 *	0.767426E-05	-.575503E-05
-.406380E-04	-.709971E-04	* 0.82 *	0.767872E-05	-.599279E-05
-.796759E-05	-.808523E-04	* 0.81 *	0.725985E-05	-.657586E-05
0.440622E-04	-.617490E-04	* 0.80 *	0.651961E-05	-.799608E-05
0.969469E-04	0.124378E-04	* 0.79 *	0.600363E-05	-.108061E-04
0.104853E-03	0.159993E-03	* 0.78 *	0.687240E-05	-.152626E-04
-.616347E-05	0.366695E-03	* 0.77 *	0.108186E-04	-.207395E-04
-.319027E-03	0.554629E-03	* 0.76 *	0.194875E-04	-.250695E-04
-.877116E-03	0.559122E-03	* 0.75 *	0.332364E-04	-.241981E-04
-.160681E-02	0.138734E-03	* 0.74 *	0.493490E-04	-.127358E-04
-.223118E-02	-.952737E-03	* 0.73 *	0.602945E-04	0.139929E-04
-.222067E-02	-.281391E-02	* 0.72 *	0.531863E-04	0.561610E-04
-.847676E-03	-.517666E-02	* 0.71 *	0.119597E-04	0.104505E-03
0.258778E-02	-.718568E-02	* 0.70 *	-.764297E-04	0.136066E-03
0.833302E-02	-.730105E-02	* 0.69 *	-.211631E-03	0.113625E-03
0.156159E-01	-.348528E-02	* 0.68 *	-.367364E-03	-.760329E-05
0.221164E-01	0.618485E-02	* 0.67 *	-.481525E-03	-.263488E-03
0.237752E-01	0.224505E-01	* 0.66 *	-.456044E-03	-.655214E-03
0.152945E-01	0.435199E-01	* 0.65 *	-.174070E-03	-.111973E-02
-.849055E-02	0.638646E-01	* 0.64 *	0.460998E-03	-.150754E-02
-.497298E-01	0.738153E-01	* 0.63 *	0.146712E-02	-.158314E-02
-.105479E 00	0.606651E-01	* 0.62 *	0.271862E-02	-.106287E-02
-.164188E 00	0.117754E-01	* 0.61 *	0.389803E-02	0.302261E-03
-.205207E 00	-.803873E-01	* 0.60 *	0.449444E-02	0.260552E-02
-.200734E 00	-.212169E 00	* 0.59 *	0.387565E-02	0.565140E-02
-.121696E 00	-.363364E 00	* 0.58 *	0.144630E-02	0.885491E-02
0.527609E-01	-.494930E 00	* 0.57 *	-.312266E-02	0.112272E-01
0.323795E 00	-.552095E 00	* 0.56 *	-.964081E-02	0.114940E-01
0.662514E 00	-.474253E 00	* 0.55 *	-.171988E-01	0.836692E-02
0.100470E 01	-.211254E 00	* 0.54 *	-.241129E-01	0.941121E-03
0.125446E 01	0.256671E 00	* 0.53 *	-.280896E-01	-.108591E-01
0.129895E 01	0.900272E 00	* 0.52 *	-.266423E-01	-.259106E-01
0.113372E 01	0.163018E 01	* 0.51 *	-.177198E-01	-.417387E-01

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 17			CHI 18	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.394549E 00	0.229921E 01 *	0.50 *	-.429468E-03	-.546997E-01
-.611602E 00	0.272154E 01 *	0.49 *	0.243287E-01	-.605493E-01
-.188545E 01	0.270835E 01 *	0.48 *	0.535221E-01	-.553458E-01
-.323275E 01	0.211420E 01 *	0.47 *	0.821146E-01	-.365271E-01
-.438536E 01	0.884510E 00 *	0.46 *	0.103745E 00	-.391144E-02
-.504599E 01	-.908376E 00 *	0.45 *	0.111897E 00	0.396594E-01
-.495001E 01	-.305218E 01 *	0.44 *	0.101369E 00	0.882766E-01
-.393191E 01	-.521251E 01 *	0.43 *	0.697207E-01	0.133644E 00
-.198083E 01	-.698250E 01 *	0.42 *	0.183327E-01	0.166441E 00
0.729973E 00	-.795710E 01 *	0.41 *	-.472237E-01	0.178137E 00
0.385043E 01	-.781809E 01 *	0.40 *	-.117705E 00	0.162898E 00
0.690056E 01	-.641119E 01 *	0.39 *	-.181579E 00	0.119149E 00
0.935050E 01	-.379698E 01 *	0.38 *	-.227059E 00	0.504022E-01
0.107190E 02	-.261759E 00 *	0.37 *	-.244381E 00	-.349077E-01
0.106701E 02	0.371705E 01 *	0.36 *	-.227858E 00	-.124607E 00
0.908698E 01	0.754645E 01 *	0.35 *	-.177237E 00	-.204803E 00
0.610682E 01	0.106204E 02 *	0.34 *	-.980645E-01	-.262350E 00
0.210715E 01	0.124289E 02 *	0.33 *	-.920538E-03	-.287263E 00
-.235381E 01	0.126516E 02 *	0.32 *	0.100317E 00	-.274588E 00
-.663158E 01	0.112174E 02 *	0.31 *	0.190851E 00	-.225339E 00
-.101059E 02	0.831685E 01 *	0.30 *	0.257517E 00	-.146339E 00
-.122853E 02	0.436835E 01 *	0.29 *	0.290989E 00	-.490023E-01
-.128865E 02	-.570892E-01 *	0.28 *	0.287246E 00	0.526811E-01
-.118735E 02	-.433443E 01 *	0.27 *	0.248050E 00	0.144529E 00
-.945267E 01	-.788829E 01 *	0.26 *	0.180380E 00	0.214476E 00
-.602574E 01	-.102819E 02 *	0.25 *	0.950150E-01	0.254368E 00
-.211389E 01	-.112767E 02 *	0.24 *	0.456892E-02	0.260981E 00
0.173260E 01	-.108537E 02 *	0.23 *	-.786231E-01	0.236120E 00
0.502114E 01	-.919685E 01 *	0.22 *	-.144377E 00	0.185886E 00
0.738546E 01	-.664558E 01 *	0.21 *	-.185994E 00	0.119319E 00
0.862663E 01	-.362656E 01 *	0.20 *	-.200884E 00	0.467154E-01
0.872252E 01	-.580299E 00 *	0.19 *	-.190468E 00	-.220442E-01
0.780843E 01	0.210542E 01 *	0.18 *	-.159450E 00	-.788885E-01
0.613599E 01	0.414491E 01 *	0.17 *	-.114691E 00	-.118470E 00
0.402038E 01	0.538122E 01 *	0.16 *	-.639055E-01	-.138526E 00
0.178601E 01	0.578927E 01 *	0.15 *	-.144302E-01	-.139713E 00
-.280117E 00	0.545863E 01 *	0.14 *	0.277565E-01	-.125025E 00
-.196144E 01	0.456215E 01 *	0.13 *	0.586501E-01	-.989696E-01
-.312851E 01	0.331762E 01 *	0.12 *	0.764410E-01	-.666619E-01
-.373966E 01	0.194968E 01 *	0.11 *	0.813805E-01	-.330106E-01
-.382886E 01	0.657560E 00 *	0.10 *	0.753765E-01	-.209334E-02
-.348520E 01	-.407728E 00 *	0.09 *	0.614361E-01	0.232118E-01
-.282899E 01	-.115522E 01 *	0.08 *	0.430613E-01	0.413370E-01
-.198901E 01	-.155548E 01 *	0.07 *	0.236954E-01	0.519146E-01
-.108418E 01	-.163355E 01 *	0.06 *	0.628316E-02	0.555127E-01
-.211685E 00	-.145611E 01 *	0.05 *	-.702223E-02	0.532935E-01
0.558160E 00	-.111560E 01 *	0.04 *	-.150033E-01	0.466703E-01
0.118113E 01	-.713742E 00 *	0.03 *	-.173887E-01	0.370215E-01
0.163405E 01	-.346539E 00 *	0.02 *	-.147609E-01	0.255021E-01
0.190773E 01	-.917947E-01 *	0.01 *	-.839011E-02	0.129678E-01
0.100000E 01	0.130029E-16 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI_{NM}, FOR ALPHA=1.0, REY NUM=6667

CHI_{21} REAL	CHI_{21} IMAGINARY	Y	CHI_{22} REAL	CHI_{22} IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.660631E-04	-.976985E-04	* 0.99 *	0.333909E-04	-.123107E-03
-.339641E-04	0.227663E-05	* 0.98 *	-.258695E-04	-.262590E-04
-.810673E-05	0.362397E-05	* 0.97 *	-.872298E-05	-.409440E-05
-.196691E-05	-.358077E-05	* 0.96 *	0.152997E-05	-.414290E-05
-.263534E-05	-.732880E-05	* 0.95 *	0.413678E-05	-.734277E-05
-.392561E-05	-.842933E-05	* 0.94 *	0.412751E-05	-.918333E-05
-.463539E-05	-.876553E-05	* 0.93 *	0.389957E-05	-.100058E-04
-.500136E-05	-.911329E-05	* 0.92 *	0.392423E-05	-.105533E-04
-.529570E-05	-.959588E-05	* 0.91 *	0.411056E-05	-.111373E-04
-.562014E-05	-.101709E-04	* 0.90 *	0.435155E-05	-.118117E-04
-.598931E-05	-.108028E-04	* 0.89 *	0.460745E-05	-.125633E-04
-.639817E-05	-.114821E-04	* 0.88 *	0.487400E-05	-.133814E-04
-.684410E-05	-.122118E-04	* 0.87 *	0.515551E-05	-.142658E-04
-.732878E-05	-.129979E-04	* 0.86 *	0.545570E-05	-.152223E-04
-.785600E-05	-.138465E-04	* 0.85 *	0.577680E-05	-.162582E-04
-.843039E-05	-.147635E-04	* 0.84 *	0.612038E-05	-.173816E-04
-.905700E-05	-.157550E-04	* 0.83 *	0.648795E-05	-.186012E-04
-.974139E-05	-.168280E-04	* 0.82 *	0.688114E-05	-.199263E-04
-.104897E-04	-.179900E-04	* 0.81 *	0.730173E-05	-.213676E-04
-.113090E-04	-.192493E-04	* 0.80 *	0.775161E-05	-.229366E-04
-.122070E-04	-.206153E-04	* 0.79 *	0.823281E-05	-.246464E-04
-.131924E-04	-.220981E-04	* 0.78 *	0.874742E-05	-.265117E-04
-.142753E-04	-.237092E-04	* 0.77 *	0.929765E-05	-.285487E-04
-.154666E-04	-.254612E-04	* 0.76 *	0.988575E-05	-.307755E-04
-.167786E-04	-.273678E-04	* 0.75 *	0.105140E-04	-.332128E-04
-.182257E-04	-.294437E-04	* 0.74 *	0.111845E-04	-.358836E-04
-.198250E-04	-.317048E-04	* 0.73 *	0.118997E-04	-.388141E-04
-.215980E-04	-.341692E-04	* 0.72 *	0.126621E-04	-.420341E-04
-.235716E-04	-.368601E-04	* 0.71 *	0.134750E-04	-.455769E-04
-.257758E-04	-.398112E-04	* 0.70 *	0.143425E-04	-.494791E-04
-.282350E-04	-.430698E-04	* 0.69 *	0.152687E-04	-.537790E-04
-.309515E-04	-.466916E-04	* 0.68 *	0.162536E-04	-.585164E-04
-.338898E-04	-.507129E-04	* 0.67 *	0.172870E-04	-.637353E-04
-.369850E-04	-.550941E-04	* 0.66 *	0.183414E-04	-.694945E-04
-.402172E-04	-.596498E-04	* 0.65 *	0.193738E-04	-.758898E-04
-.437889E-04	-.640326E-04	* 0.64 *	0.203494E-04	-.830812E-04
-.483805E-04	-.678941E-04	* 0.63 *	0.213019E-04	-.913046E-04
-.553316E-04	-.713609E-04	* 0.62 *	0.224236E-04	-.100825E-03
-.664093E-04	-.758488E-04	* 0.61 *	0.241384E-04	-.111785E-03
-.827100E-04	-.849125E-04	* 0.60 *	0.270471E-04	-.123928E-03
-.102411E-03	-.104319E-03	* 0.59 *	0.315941E-04	-.136292E-03
-.117772E-03	-.140057E-03	* 0.58 *	0.373464E-04	-.147113E-03
-.113062E-03	-.193053E-03	* 0.57 *	0.419729E-04	-.154351E-03
-.665591E-04	-.250573E-03	* 0.56 *	0.403993E-04	-.157253E-03
0.395185E-04	-.277009E-03	* 0.55 *	0.250764E-04	-.159067E-03
0.198775E-03	-.216612E-03	* 0.54 *	-.114173E-04	-.170211E-03
0.352732E-03	0.240241E-04	* 0.53 *	-.705513E-04	-.210091E-03
0.366308E-03	0.478285E-03	* 0.52 *	-.139219E-03	-.304695E-03
0.271544E-04	0.111434E-02	* 0.51 *	-.181089E-03	-.476941E-03

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 21			CHI 22	
REAL	IMAGINARY	Y	REAL	IMAGINARY
-.905626E-03	0.172563E-02 *	0.50 *	-.133473E-03	-.728439E-03
-.258412E-02	0.187768E-02 *	0.49 *	0.829065E-04	-.101534E-02
-.488944E-02	0.922581E-03 *	0.48 *	0.534900E-03	-.122675E-02
-.722791E-02	-.185523E-02 *	0.47 *	0.122770E-02	-.117993E-02
-.839465E-02	-.692917E-02 *	0.46 *	0.204441E-02	-.648513E-03
-.662513E-02	-.140823E-01 *	0.45 *	0.269573E-02	0.564452E-03
0.512318E-04	-.219312E-01 *	0.44 *	0.271083E-02	0.251061E-02
0.131073E-01	-.276182E-01 *	0.43 *	0.150160E-02	0.496046E-02
0.325415E-01	-.269199E-01 *	0.42 *	-.148069E-02	0.729305E-02
0.558639E-01	-.149136E-01 *	0.41 *	-.650554E-02	0.847143E-02
0.774225E-01	0.125472E-01 *	0.40 *	-.132881E-01	0.716064E-02
0.884961E-01	0.570332E-01 *	0.39 *	-.207633E-01	0.201725E-02
0.784886E-01	0.115535E 00 *	0.38 *	-.270142E-01	-.787212E-02
0.373034E-01	0.179084E 00 *	0.37 *	-.294450E-01	-.224885E-01
-.414057E-01	0.232633E 00 *	0.36 *	-.252431E-01	-.404544E-01
-.156807E 00	0.256713E 00 *	0.35 *	-.120872E-01	-.588473E-01
-.298276E 00	0.230972E 00 *	0.34 *	0.110276E-01	-.733905E-01
-.444613E 00	0.139153E 00 *	0.33 *	0.430578E-01	-.790831E-01
-.565846E 00	-.255035E-01 *	0.32 *	0.805046E-01	-.712104E-01
-.627782E 00	-.255794E 00 *	0.31 *	0.117527E 00	-.465558E-01
-.598743E 00	-.528433E 00 *	0.30 *	0.146662E 00	-.453818E-02
-.457200E 00	-.805295E 00 *	0.29 *	0.160091E 00	0.520356E-01
-.198575E 00	-.103833E 01 *	0.28 *	0.151231E 00	0.116856E 00
0.160555E 00	-.117754E 01 *	0.27 *	0.116319E 00	0.180763E 00
0.582197E 00	-.118057E 01 *	0.26 *	0.556183E-01	0.233110E 00
0.101113E 01	-.102191E 01 *	0.25 *	-.269741E-01	0.263615E 00
0.138306E 01	-.699666E 00 *	0.24 *	-.119788E 00	0.264325E 00
0.163523E 01	-.238231E 00 *	0.23 *	-.213599E 00	0.231284E 00
0.171749E 01	0.313915E 00 *	0.22 *	-.294485E 00	0.165548E 00
0.160159E 01	0.891006E 00 *	0.21 *	-.350474E 00	0.732931E-01
0.128669E 01	0.142016E 01 *	0.20 *	-.372652E 00	-.349892E-01
0.800295E 00	0.183293E 01 *	0.19 *	-.356644E 00	-.146081E 00
0.194201E 00	0.207610E 01 *	0.18 *	-.303294E 00	-.246084E 00
-.463430E 00	0.211967E 01 *	0.17 *	-.218451E 00	-.322534E 00
-.109836E 01	0.196083E 01 *	0.16 *	-.111925E 00	-.366218E 00
-.164096E 01	0.162334E 01 *	0.15 *	0.413042E-02	-.372366E 00
-.203548E 01	0.115276E 01 *	0.14 *	0.117104E 00	-.341096E 00
-.224636E 01	0.608760E 00 *	0.13 *	0.215726E 00	-.277082E 00
-.226103E 01	0.558329E-01 *	0.12 *	0.291495E 00	-.188598E 00
-.208901E 01	-.445749E 00 *	0.11 *	0.339537E 00	-.861484E-01
-.175804E 01	-.847529E 00 *	0.10 *	0.358821E 00	0.190299E-01
-.130824E 01	-.111798E 01 *	0.09 *	0.351791E 00	0.116364E 00
-.785618E 00	-.124476E 01 *	0.08 *	0.323531E 00	0.197044E 00
-.235869E 00	-.123422E 01 *	0.07 *	0.280667E 00	0.254726E 00
0.300402E 00	-.110862E 01 *	0.06 *	0.230197E 00	0.285819E 00
0.790703E 00	-.901741E 00 *	0.05 *	0.178439E 00	0.289413E 00
0.121175E 01	-.653782E 00 *	0.04 *	0.130220E 00	0.266947E 00
0.154891E 01	-.406061E 00 *	0.03 *	0.883932E-01	0.221731E 00
0.179441E 01	-.196249E 00 *	0.02 *	0.537089E-01	0.158446E 00
0.194505E 01	-.543941E-01 *	0.01 *	0.250114E-01	0.826781E-01
0.100000E 01	0.679080E-16 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.00, REY NUM=6667
NM

	CHI 23			CHI 24	
	REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0		1.00	0.0	0.0
0.801238E-04	-0.298594E-04	0.99		0.799441E-05	-0.107857E-03
0.433014E-05	-0.250523E-04	0.98		-0.252222E-04	-0.174462E-04
-0.142800E-05	-0.677392E-05	0.97		-0.813260E-05	-0.187017E-05
0.269882E-05	-0.956735E-06	0.96		0.327009E-06	-0.343808E-05
0.561410E-05	-0.777126E-06	0.95		0.200095E-05	-0.653720E-05
0.667599E-05	-0.157769E-05	0.94		0.166318E-05	-0.810427E-05
0.764105E-05	-0.208877E-05	0.93		0.128945E-05	-0.876211E-05
0.734521E-05	-0.233322E-05	0.92		0.117671E-05	-0.921840E-05
0.773932E-05	-0.249704E-05	0.91		0.119772E-05	-0.972231E-05
0.821058E-05	-0.266992E-05	0.90		0.124790E-05	-0.103352E-04
0.873295E-05	-0.287158E-05	0.89		0.129251E-05	-0.110984E-04
0.929712E-05	-0.310034E-05	0.88		0.132870E-05	-0.117411E-04
0.990452E-05	-0.335389E-05	0.87		0.135975E-05	-0.125335E-04
0.105630E-04	-0.363293E-05	0.86		0.138732E-05	-0.133913E-04
0.112687E-04	-0.394009E-05	0.85		0.141118E-05	-0.143215E-04
0.120359E-04	-0.427886E-05	0.84		0.143020E-05	-0.153316E-04
0.128670E-04	-0.465319E-05	0.83		0.144291E-05	-0.164297E-04
0.137683E-04	-0.506750E-05	0.82		0.144759E-05	-0.176243E-04
0.147464E-04	-0.552669E-05	0.81		0.144229E-05	-0.189254E-04
0.158091E-04	-0.603602E-05	0.80		0.142472E-05	-0.203437E-04
0.169645E-04	-0.660093E-05	0.79		0.139211E-05	-0.218911E-04
0.182205E-04	-0.722728E-05	0.78		0.134135E-05	-0.235811E-04
0.195832E-04	-0.792301E-05	0.77		0.126794E-05	-0.254282E-04
0.210579E-04	-0.870225E-05	0.76		0.116629E-05	-0.274493E-04
0.226542E-04	-0.959015E-05	0.75		0.102915E-05	-0.296641E-04
0.244016E-04	-0.106249E-04	0.74		0.848718E-06	-0.320973E-04
0.263686E-04	-0.118344E-04	0.73		0.620013E-06	-0.347787E-04
0.286670E-04	-0.131896E-04	0.72		0.347115E-06	-0.377397E-04
0.313928E-04	-0.145276E-04	0.71		0.343136E-07	-0.410024E-04
0.344568E-04	-0.155212E-04	0.70		-0.303697E-06	-0.445621E-04
0.373171E-04	-0.158362E-04	0.69		-0.700215E-06	-0.483771E-04
0.388008E-04	-0.156501E-04	0.68		-0.128726E-05	-0.523949E-04
0.374454E-04	-0.165450E-04	0.67		-0.235049E-05	-0.566578E-04
0.329314E-04	-0.223165E-04	0.66		-0.428492E-05	-0.614973E-04
0.288321E-04	-0.385014E-04	0.65		-0.732761E-05	-0.677436E-04
0.357054E-04	-0.688809E-04	0.64		-0.109907E-04	-0.767158E-04
0.715153E-04	-0.107789E-03	0.63		-0.133386E-04	-0.896277E-04
0.154479E-03	-0.129815E-03	0.62		-0.106510E-04	-0.106098E-03
0.283899E-03	-0.836863E-04	0.61		0.153823E-05	-0.121925E-03
0.410131E-03	0.971747E-04	0.60		0.250170E-04	-0.127259E-03
0.476846E-03	0.453439E-03	0.59		0.528938E-04	-0.107515E-03
0.741463E-04	0.923538E-03	0.58		0.629865E-04	-0.499583E-04
-0.789741E-03	0.125266E-02	0.57		0.155583E-04	0.423153E-04
-0.222222E-02	0.944288E-03	0.56		-0.137292E-03	0.131405E-03
-0.385488E-02	-0.677261E-03	0.55		-0.424202E-03	0.129699E-03
-0.469377E-02	-0.436822E-02	0.54		-0.869439E-03	-0.951603E-04
-0.310158E-02	-0.913483E-02	0.53		-0.114361E-02	-0.677865E-03
0.280355E-02	-0.143989E-01	0.52		-0.113959E-02	-0.166678E-02
0.141961E-01	-0.166719E-01	0.51		-0.413211E-03	-0.290268E-03

ADJOINT FUNCTIONS, CHI$_{NM}$, FOR ALPHA=1.0, REY NUM=6667

(CONTINUED)

CHI 23			CHI 24	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.301312E-01	-.112672E-01 *	0.50 *	0.137831E-02	-.391054E-02
0.461174E-01	0.669377E-02 *	0.49 *	0.429951E-02	-.387939E-02
0.534616E-01	0.397849E-01 *	0.48 *	0.785648E-02	-.181106E-02
0.403102E-01	0.850452E-01 *	0.47 *	0.107915E-01	0.311633E-02
-.496917E-02	0.131159E 00 *	0.46 *	0.111100E-01	0.110071E-01
-.882069E-01	0.157693E 00 *	0.45 *	0.647760E-02	0.206790E-01
-.202936E 00	0.137998E 00 *	0.44 *	-.497450E-02	0.293171E-01
-.325393E 00	0.465183E-01 *	0.43 *	-.235680E-01	0.326323E-01
-.413947E 00	-.130317E 00 *	0.42 *	-.470424E-01	0.257297E-01
-.415360E 00	-.382430E 00 *	0.41 *	-.700198E-01	0.460943E-02
-.278417E 00	-.667955E 00 *	0.40 *	-.844076E-01	-.318226E-01
0.272538E-01	-.913215E 00 *	0.39 *	-.809752E-01	-.801311E-01
0.492194E 00	-.102391E 01 *	0.38 *	-.519654E-01	-.131518E 00
0.105471E 01	-.907409E 00 *	0.37 *	0.583428E-02	-.172572E 00
0.160141E 01	-.501936E 00 *	0.36 *	0.884783E-01	-.187774E 00
0.198432E 01	0.195136E 00 *	0.35 *	0.183720E 00	-.163431E 00
0.205316E 01	0.110932E 01 *	0.34 *	0.272091E 00	-.921355E-01
0.169633E 01	0.208943E 01 *	0.33 *	0.339391E 00	0.235247E-01
0.879734E 00	0.293005E 01 *	0.32 *	0.337015E 00	0.169314E 00
-.328331E 00	0.341344E 01 *	0.31 *	0.277880E 00	0.320608E 00
-.175580E 01	0.336179E 01 *	0.30 *	0.151331E 00	0.446670E 00
-.315239E 01	0.268668E 01 *	0.29 *	-.294866E-01	0.517166E 00
-.423826E 01	0.142172E 01 *	0.28 *	-.237737E 00	0.509382E 00
-.476488E 01	-.271711E 00 *	0.27 *	-.437513E 00	0.414290E 00
-.457332E 01	-.212911E 01 *	0.26 *	-.591021E 00	0.239808E 00
-.363489E 01	-.383336E 01 *	0.25 *	-.666658E 00	0.102532E-01
-.206357E 01	-.507936E 01 *	0.24 *	-.646007E 00	-.237985E 00
-.967792E-01	-.563739E 01 *	0.23 *	-.528034E 00	-.463602E 00
0.195105E 01	-.540025E 01 *	0.22 *	-.329511E 00	-.628653E 00
0.375074E 01	-.440360E 01 *	0.21 *	-.816108E-01	-.706030E 00
0.502197E 01	-.281570E 01 *	0.20 *	0.176416E 00	-.684469E 00
0.558400E 01	-.900277E 00 *	0.19 *	0.404946E 00	-.570092E 00
0.538340E 01	0.103750E 01 *	0.18 *	0.571302E 00	-.384382E 00
0.449475E 01	0.270940E 01 *	0.17 *	0.655166E 00	-.159277E 00
0.309658E 01	0.389411E 01 *	0.16 *	0.651118E 00	0.693208E-01
0.143031E 01	0.446953E 01 *	0.15 *	0.568083E 00	0.268143E 00
-.247659E 00	0.442297E 01 *	0.14 *	0.426166E 00	0.411923E 00
-.171019E 01	0.384008E 01 *	0.13 *	0.251834E 00	0.486657E 00
-.279209E 01	0.287764E 01 *	0.12 *	0.726143E-01	0.490429E 00
-.348661E 01	0.172769E 01 *	0.11 *	-.875866E-01	0.432027E 00
-.354570E 01	0.581086E 00 *	0.10 *	-.211772E 00	0.327985E 00
-.326664E 01	-.402878E 00 *	0.09 *	-.291358E 00	0.198865E 00
-.267052E 01	-.111656E 01 *	0.08 *	-.325941E 00	0.655818E-01
-.187795E 01	-.151227E 01 *	0.07 *	-.321676E 00	-.536091E-01
-.109732E 01	-.159967E 01 *	0.06 *	-.288819E 00	-.145104E 00
-.158989E 00	-.143493E 01 *	0.05 *	-.239040E 00	-.200853E 00
0.593009E 00	-.111486E 01 *	0.04 *	-.183000E 00	-.218311E 00
0.120197E 01	-.709450E 00 *	0.03 *	-.128600E 00	-.199741E 00
0.164400E 01	-.345247E 00 *	0.02 *	-.800750E-01	-.151164E 00
0.191044E 01	-.915100E-01 *	0.01 *	-.379735E-01	-.812414E-01
0.100000E 01	0.739795E-17 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI_{NM}, FOR ALPHA=1.0, REY NUM=6667

CHI_{25} REAL	CHI_{25} IMAGINARY	Y	CHI_{26} REAL	CHI_{26} IMAGINARY
0.0	0.0	1.00	0.0	0.0
-.188758E 05	0.113679E 05	0.99	0.225039E 00	0.225419E 00
-.185947E 05	-.454222E 03	0.98	0.532215E-01	0.259877E 00
-.178688E 05	-.146257E 05	0.97	-.150364E 00	0.292679E 00
-.996946E 04	-.293810E 05	0.96	-.381532E 00	0.224518E 00
0.646899E 04	-.392604E 05	0.95	-.566241E 00	0.213185E-01
0.287216E 05	-.386171E 05	0.94	-.616957E 00	-.292504E 00
0.501644E 05	-.242224E 05	0.93	-.470974E 00	-.630455E 00
0.624165E 05	0.244397E 04	0.92	-.128778E 00	-.869399E 00
0.588147E 05	0.346455E 05	0.91	0.329823E 00	-.898382E 00
0.377105E 05	0.622839E 05	0.90	0.765386E 00	-.670433E 00
0.389933E 04	0.756810E 05	0.89	0.103000E 01	-.231527E 00
-.327399E 05	0.695949E 05	0.88	0.102786E 01	0.290231E 00
-.609505E 05	0.455409E 05	0.87	0.756318E 00	0.732797E 00
-.724859E 05	0.112539E 05	0.86	0.307232E 00	0.964040E 00
-.651588E 05	-.224603E 05	0.85	-.171946E 00	0.931533E 00
-.432264E 05	-.459706E 05	0.84	-.537882E 00	0.676254E 00
-.151393E 05	-.542096E 05	0.83	-.703778E 00	0.306918E 00
0.100923E 05	-.478331E 05	0.82	-.662419E 00	-.494831E-01
0.261766E 05	-.319682E 05	0.81	-.474204E 00	-.296313E 00
0.311545E 05	-.134860E 05	0.80	-.231323E 00	-.394741E 00
0.270205E 05	0.178349E 04	0.79	-.178575E-01	-.362962E 00
0.179631E 05	0.107500E 05	0.78	0.116920E 00	-.254106E 00
0.828598E 04	0.132762E 05	0.77	0.164699E 00	-.127353E 00
0.924444E 03	0.112440E 05	0.76	0.147212E 00	-.257885E-01
-.345154E 04	0.719873E 04	0.75	0.979514E-01	0.323668E-01
-.447264E 04	0.324090E 04	0.74	0.462293E-01	0.502370E-01
-.324544E 04	0.504680E 03	0.73	0.894437E-02	0.423497E-01
-.182597E 04	-.801328E 03	0.72	-.972075E-02	0.246363E-01
-.583646E 03	-.103698E 04	0.71	-.138239E-01	0.828040E-02
0.161577E 03	-.730198E 03	0.70	-.102174E-01	-.186654E-02
0.434760E 03	-.306851E 03	0.69	-.468934E-02	-.576812E-02
0.413996E 03	0.679959E 01	0.68	-.439876E-03	-.565198E-02
0.281324E 03	0.156495E 03	0.67	0.166974E-02	-.393776E-02
0.152644E 03	0.182280E 03	0.66	0.210812E-02	-.221439E-02
0.721874E 02	0.147972E 03	0.65	0.171264E-02	-.111310E-02
0.382007E 02	0.101920E 03	0.64	0.113683E-02	-.632833E-03
0.317860E 02	0.671362E 02	0.63	0.699190E-03	-.527853E-03
0.352535E 02	0.477035E 02	0.62	0.461282E-03	-.560941E-03
0.386337E 02	0.390615E 02	0.61	0.364954E-03	-.596392E-03
0.388413E 02	0.354603E 02	0.60	0.333954E-03	-.591293E-03
0.364358E 02	0.331508E 02	0.59	0.318209E-03	-.552437E-03
0.329149E 02	0.306342E 02	0.58	0.297815E-03	-.499648E-03
0.293917E 02	0.277602E 02	0.57	0.271030E-03	-.447703E-03
0.263367E 02	0.248344E 02	0.56	0.242217E-03	-.402753E-03
0.237917E 02	0.221321E 02	0.55	0.215267E-03	-.365204E-03
0.216366E 02	0.197667E 02	0.54	0.191845E-03	-.333525E-03
0.197485E 02	0.177307E 02	0.53	0.171955E-03	-.305385E-03
0.180512E 02	0.159680E 02	0.52	0.154947E-03	-.280308E-03
0.165086E 02	0.144220E 02	0.51	0.140153E-03	-.257572E-03

ADJOINT FUNCTIONS, CHI $_{NM}$, FOR ALPHA=1.0, REY NUM=6667

(CONTINUED)

CHI 25			CHI 26	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.151045E 02	0.130511E 02 *	0.50 *	0.127098E-03	-.236926E-03
0.138283E 02	0.118278E 02 *	0.49 *	0.115490E-03	-.218195E-03
0.126692E 02	0.107329E 02 *	0.48 *	0.105135E-03	-.201207E-03
0.116160E 02	0.975125E 01 *	0.47 *	0.958827E-04	-.185785E-03
0.106574E 02	0.886966E 01 *	0.46 *	0.876033E-04	-.171759E-03
0.978344E 01	0.807635E 01 *	0.45 *	0.801787E-04	-.158977E-03
0.898524E 01	0.736095E 01 *	0.44 *	0.735045E-04	-.147305E-03
0.825511E 01	0.671438E 01 *	0.43 *	0.674897E-04	-.136628E-03
0.758632E 01	0.612882E 01 *	0.42 *	0.620562E-04	-.126845E-03
0.697293E 01	0.559748E 01 *	0.41 *	0.571369E-04	-.117866E-03
0.640966E 01	0.511450E 01 *	0.40 *	0.526736E-04	-.109614E-03
0.589182E 01	0.467473E 01 *	0.39 *	0.486158E-04	-.102017E-03
0.541521E 01	0.427367E 01 *	0.38 *	0.449195E-04	-.950138E-04
0.497609E 01	0.390736E 01 *	0.37 *	0.415461E-04	-.885481E-04
0.457112E 01	0.357234E 01 *	0.36 *	0.384616E-04	-.825705E-04
0.419730E 01	0.326553E 01 *	0.35 *	0.356363E-04	-.770362E-04
0.385194E 01	0.298420E 01 *	0.34 *	0.330439E-04	-.719056E-04
0.353264E 01	0.272596E 01 *	0.33 *	0.306611E-04	-.671426E-04
0.323722E 01	0.248866E 01 *	0.32 *	0.284672E-04	-.627150E-04
0.296372E 01	0.227040E 01 *	0.31 *	0.264440E-04	-.585937E-04
0.271038E 01	0.206949E 01 *	0.30 *	0.245752E-04	-.547524E-04
0.247560E 01	0.188439E 01 *	0.29 *	0.228460E-04	-.511672E-04
0.225795E 01	0.171376E 01 *	0.28 *	0.212437E-04	-.478166E-04
0.205612E 01	0.155639E 01 *	0.27 *	0.197563E-04	-.446810E-04
0.186892E 01	0.141117E 01 *	0.26 *	0.183735E-04	-.417426E-04
0.169529E 01	0.127713E 01 *	0.25 *	0.170857E-04	-.389849E-04
0.153425E 01	0.115339E 01 *	0.24 *	0.158845E-04	-.363932E-04
0.138492E 01	0.103914E 01 *	0.23 *	0.147621E-04	-.339539E-04
0.124650E 01	0.933684E 00 *	0.22 *	0.137115E-04	-.316545E-04
0.111825E 01	0.836361E 00 *	0.21 *	0.127264E-04	-.294836E-04
0.999507E 00	0.746592E 00 *	0.20 *	0.118010E-04	-.274305E-04
0.889673E 00	0.663849E 00 *	0.19 *	0.109299E-04	-.254856E-04
0.788196E 00	0.587656E 00 *	0.18 *	0.101085E-04	-.236399E-04
0.694578E 00	0.517583E 00 *	0.17 *	0.933211E-05	-.218851E-04
0.608365E 00	0.453241E 00 *	0.16 *	0.859683E-05	-.202133E-04
0.529148E 00	0.394278E 00 *	0.15 *	0.789886E-05	-.186175E-04
0.456552E 00	0.340376E 00 *	0.14 *	0.723473E-05	-.170908E-04
0.390234E 00	0.291248E 00 *	0.13 *	0.660123E-05	-.156271E-04
0.329871E 00	0.246647E 00 *	0.12 *	0.599536E-05	-.142203E-04
0.275179E 00	0.206391E 00 *	0.11 *	0.541434E-05	-.128649E-04
0.225978E 00	0.170373E 00 *	0.10 *	0.485554E-05	-.115558E-04
0.182338E 00	0.138453E 00 *	0.09 *	0.431637E-05	-.102879E-04
0.144612E 00	0.110010E 00 *	0.08 *	0.379419E-05	-.905647E-05
0.112677E 00	0.831351E-01 *	0.07 *	0.328650E-05	-.785617E-05
0.831987E-01	0.547257E-01 *	0.06 *	0.279208E-05	-.668084E-05
0.453153E-01	0.256653E-01 *	0.05 *	0.231374E-05	-.552503E-05
-.168678E-01	0.173379E-01 *	0.04 *	0.185970E-05	-.439156E-05
-.896097E-01	0.940851E-01 *	0.03 *	0.143186E-05	-.330663E-05
-.311179E-01	0.335833E 00 *	0.02 *	0.978674E-06	-.232264E-05
0.538983E 00	0.610988E 00 *	0.01 *	0.312611E-06	-.143536E-05
0.100000E 01	-.720257E-16 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI_{NM}, FOR ALPHA=1.00, REY NUM=6667

CHI_{27} REAL	CHI_{27} IMAGINARY	Y	CHI_{28} REAL	CHI_{28} IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.176354E-03	-.840760E-04	* 0.99 *	-.268584E-04	-.127138E-04
-.492738E-04	0.336652E-04	* 0.98 *	-.765546E-06	-.905368E-05
-.907915E-05	0.142118E-04	* 0.97 *	-.807574E-06	-.244111E-05
-.584788E-05	-.236339E-05	* 0.96 *	0.837877E-06	-.464285E-06
-.1 4245E-04	-.769312E-05	* 0.95 *	0.190812E-05	-.491916E-06
-.136539E-04	-.813239E-05	* 0.94 *	0.227089E-05	-.831652E-06
-.151863E-04	-.781172E-05	* 0.93 *	0.238022E-05	-.1044(8E-05
-.161303E-04	-.783484E-05	* 0.92 *	0.247344E-05	-.115376E-05
-.170846E-04	-.815679E-05	* 0.91 *	0.260297E-05	-.123585E-05
-.181930E-04	-.859516E-05	* 0.90 *	0.276112E-05	-.132499E-05
-.194459E-04	-.906410E-05	* 0.89 *	0.293678E-05	-.142833E-05
-.208227E-04	-.954733E-05	* 0.88 *	0.312603E-05	-.154501E-05
-.223214E-04	-.100502E-04	* 0.87 *	0.332927E-05	-.167428E-05
-.239516E-04	-.105789E-04	* 0.86 *	0.354816E-05	-.181671E-05
-.257278E-04	-.111360E-04	* 0.85 *	0.378446E-05	-.197377E-05
-.276662E-04	-.117223E-04	* 0.84 *	0.403982E-05	-.214729E-05
-.297848E-04	-.123373E-04	* 0.83 *	0.431600E-05	-.233957E-05
-.321050E-04	-.129809E-04	* 0.82 *	0.461488E-05	-.255226E-05
-.346510E-04	-.136560E-04	* 0.81 *	0.493857E-05	-.278841E-05
-.374465E-04	-.143703E-04	* 0.80 *	0.528919E-05	-.305044E-05
-.405054E-04	-.151345E-04	* 0.79 *	0.566856E-05	-.334133E-05
-.438226E-04	-.159453E-04	* 0.78 *	0.607797E-05	-.366523E-05
-.473833E-04	-.167489E-04	* 0.77 *	0.651881E-05	-.402876E-05
-.512246E-04	-.174039E-04	* 0.76 *	0.699512E-05	-.444210E-05
-.555678E-04	-.177105E-04	* 0.75 *	0.751831E-05	-.491698E-05
-.609591E-04	-.176203E-04	* 0.74 *	0.811090E-05	-.545790E-05
-.681923E-04	-.176941E-04	* 0.73 *	0.880018E-05	-.604579E-05
-.776402E-04	-.196160E-04	* 0.72 *	0.958948E-05	-.662386E-05
-.877478E-04	-.260632E-04	* 0.71 *	0.104029E-04	-.711380E-05
-.932073E-04	-.387552E-04	* 0.70 *	0.110318E-04	-.750207E-05
-.848340E-04	-.537999E-04	* 0.69 *	0.111647E-04	-.801402E-05
-.546631E-04	-.555356E-04	* 0.68 *	0.106216E-04	-.930496E-05
-.929364E-05	-.142634E-04	* 0.67 *	0.986611E-05	-.124454E-04
0.176848E-04	0.102223E-03	* 0.66 *	0.106383E-04	-.183499E-04
-.816364E-04	0.293547E-03	* 0.65 *	0.161491E-04	-.263880E-04
-.398678E-03	0.470149E-03	* 0.64 *	0.298891E-04	-.324486E-04
-.995386E-03	0.404032E-03	* 0.63 *	0.521975E-04	-.277445E-04
-.171860E-02	-.249847E-03	* 0.62 *	0.748730E-04	-.729350E-06
-.2 4416E-02	-.178220E-02	* 0.61 *	0.764641E-04	0.553735E-04
-.1 4189E-02	-.406890E-02	* 0.60 *	0.236931E-04	0.129059E-03
0.233388E-02	-.613766E-02	* 0.59 *	-.114393E-03	0.175728E-03
0.848265E-02	-.573130E-02	* 0.58 *	-.336345E-03	0.112928E-03
0.160121E-01	0.571853E-04	* 0.57 *	-.568925E-03	-.158712E-03
0.216972E-01	0.137082E-01	* 0.56 *	-.639510E-03	-.697277E-03
0.154446E-01	0.346670E-01	* 0.55 *	-.293504E-03	-.142957E-02
-.772013E-02	0.565486E-01	* 0.54 *	0.711673E-03	-.206331E-02
-.531366E-01	0.655637E-01	* 0.53 *	0.243019E-02	-.206442E-02
-.115240E 00	0.423343E-01	* 0.52 *	0.451388E-02	-.771100E-03
-.173061E 00	-.312582E-01	* 0.51 *	0.606531E-02	0.231527E-02

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 27			CHI 28	
REAL	IMAGINARY	Y	REAL	IMAGINARY
-0.189422E 00	-0.160444E 00 *	0.50 *	0.569853E-02	0.710249E-02
-0.118706E 00	-0.324440E 00 *	0.49 *	0.192195E-02	0.124927E-01
0.753049E-01	-0.468105E 00 *	0.48 *	-0.615221E-02	0.162196E-01
0.394672E 00	-0.505883E 00 *	0.47 *	-0.179449E-01	0.151839E-01
0.784216E 00	-0.343244E 00 *	0.46 *	-0.307463E-01	0.640730E-02
0.112243E 01	0.853050E-01 *	0.45 *	-0.396878E-01	-0.115284E-01
0.123787E 01	0.771268E 00 *	0.44 *	-0.386854E-01	-0.369938E-01
0.955449E 00	0.159755E 01 *	0.43 *	-0.223772E-01	-0.644374E-01
0.165427E 00	0.233402E 01 *	0.42 *	0.113690E-01	-0.847737E-01
-0.110549E 01	0.267720E 01 *	0.41 *	0.592267E-01	-0.873737E-01
-0.264935E 01	0.233403E 01 *	0.40 *	0.111479E 00	-0.634179E-01
-0.4 8521E 01	0.113092E 01 *	0.39 *	0.153193E 00	-0.972584E-02
-0.493359E 01	-0.886277E 00 *	0.38 *	0.167680E 00	0.682803E-01
-0.474719E 01	-0.340157E 01 *	0.37 *	0.141571E 00	0.155830E 00
-0.326447E 01	-0.585798E 01 *	0.36 *	0.700354E-01	0.231093E 00
-0.536402E 00	-0.757399E 01 *	0.35 *	-0.396612E-01	0.270355E 00
0.302230E 01	-0.792408E 01 *	0.34 *	-0.167823E 00	0.254844E 00
0.668771E 01	-0.653371E 01 *	0.33 *	-0.285863E 00	0.177196E 00
0.958446E 01	-0.342709E 01 *	0.32 *	-0.363112E 00	0.453784E-01
0.109093E 02	0.925147E 00 *	0.31 *	-0.375125E 00	-0.117483E 00
0.111577E 02	0.568346E 01 *	0.30 *	-0.311022E 00	-0.277730E 00
0.728403E 01	0.982844E 01 *	0.29 *	-0.177580E 00	-0.399193E 00
0.274566E 01	0.124120E 02 *	0.28 *	0.135799E-02	-0.452401E 00
-0.258897E 01	0.128002E 02 *	0.27 *	0.190148E 00	-0.422364E 00
-0.764294E 01	0.108383E 02 *	0.26 *	0.349876E 00	-0.312656E 00
-0.113892E 02	0.689280E 01 *	0.25 *	0.447781E 00	-0.144676E 00
-0.130932E 02	0.175885E 01 *	0.24 *	0.464966E 00	0.476396E-01
-0.124750E 02	-0.353546E 01 *	0.23 *	0.400398E 00	0.226091E 00
-0.975297E 01	-0.797377E 01 *	0.22 *	0.270312E 00	0.357132E 00
-0.556508E 01	-0.107779E 02 *	0.21 *	0.103491E 00	0.419104E 00
-0.796634E 00	-0.115606E 02 *	0.20 *	-0.660743E-01	0.406068E 00
0.363284E 01	-0.103733E 02 *	0.19 *	-0.207648E 00	0.327620E 00
0.696813E 01	-0.764887E 01 *	0.18 *	-0.297160E 00	0.205160E 00
0.875580E 01	-0.406503E 01 *	0.17 *	-0.326793E 00	0.659595E-01
0.889703E 01	-0.371979E 00 *	0.16 *	-0.299281E 00	-0.632713E-01
0.761512E 01	0.277101E 01 *	0.15 *	-0.228331E 00	-0.161734E 00
0.535959E 01	0.491385E 01 *	0.14 *	-0.133612E 00	-0.217753E 00
0.267889E 01	0.586979E 01 *	0.13 *	-0.358281E-01	-0.229486E 00
0.961508E-01	0.570496E 01 *	0.12 *	0.475358E-01	-0.203436E 00
-0.198547E 01	0.467783E 01 *	0.11 *	0.105006E 00	-0.151524E 00
-0.333330E 01	0.315155E 01 *	0.10 *	0.132134E 00	-0.876548E-01
-0.389018E 01	0.150322E 01 *	0.09 *	0.130907E 00	-0.246431E-01
-0.374349E 01	0.495105E-01 *	0.08 *	0.108029E 00	0.279275E-01
-0.317314E 01	-0.100000E 01 *	0.07 *	0.726776E-01	0.646629E-01
-0.209524E 01	-0.155909E 01 *	0.06 *	0.343147E-01	0.842162E-01
-0.101437E 01	-0.165470E 01 *	0.05 *	0.939202E-03	0.883473E-01
0.726655E-02	-0.139865E 01 *	0.04 *	-0.220051E-01	0.805944E-01
0.861643E 00	-0.950314E 00 *	0.03 *	-0.320588E-01	0.649558E-01
0.149064E 01	-0.478685E 00 *	0.02 *	-0.296282E-01	0.448884E-01
0.187160E 01	-0.129380E 00 *	0.01 *	-0.174876E-01	0.227924E-01
0.100000E 01	0.295808E-16 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI_{NM}, FOR ALPHA=1.0, REY NUM=6667

CHI_{31} REAL	CHI_{31} IMAGINARY	Y	CHI_{32} REAL	CHI_{32} IMAGINARY
0.0	0.0	1.00	0.0	0.0
-.511669E-04	-.337313E-04	0.99	-.136724E-04	-.332655E-04
-.100888E-04	0.798262E-05	0.98	-.755139E-05	0.544343E-06
-.102731E-05	0.154166E-06	0.97	-.554712E-06	-.261709E-06
-.168823E-05	-.332390E-05	0.96	0.275659E-06	-.217323E-05
-.272225E-05	-.388506E-05	0.95	-.423592E-07	-.278929E-05
-.312125E-05	-.394387E-05	0.94	-.217822E-06	-.295005E-05
-.331219E-05	-.409894E-05	0.93	-.259942E-06	-.308864E-05
-.350464E-05	-.434012E-05	0.92	-.274235E-06	-.326972E-05
-.372975E-05	-.461682E-05	0.91	-.292728E-06	-.347897E-05
-.398124E-05	-.491535E-05	0.90	-.316918E-06	-.370761E-05
-.425594E-05	-.523721E-05	0.89	-.344759E-06	-.395531E-05
-.455505E-05	-.558587E-05	0.88	-.375695E-06	-.422417E-05
-.488115E-05	-.596429E-05	0.87	-.410010E-06	-.451647E-05
-.523711E-05	-.637526E-05	0.86	-.448184E-06	-.483455E-05
-.562600E-05	-.682181E-05	0.85	-.490734E-06	-.518090E-05
-.605121E-05	-.730727E-05	0.84	-.538218E-06	-.555828E-05
-.651653E-05	-.783535E-05	0.83	-.591271E-06	-.596974E-05
-.702618E-05	-.841016E-05	0.82	-.650616E-06	-.641870E-05
-.758491E-05	-.903623E-05	0.81	-.717082E-06	-.690895E-05
-.819802E-05	-.971800E-05	0.80	-.791621E-06	-.744473E-05
-.887150E-05	-.104628E-04	0.79	-.875324E-06	-.803073E-05
-.961204E-05	-.112751E-04	0.78	-.969450E-06	-.867220E-05
-.104272E-04	-.121624E-04	0.77	-.107545E-05	-.937504E-05
-.113255E-04	-.131322E-04	0.76	-.119499E-05	-.101458E-04
-.123167E-04	-.141932E-04	0.75	-.133001E-05	-.109919E-04
-.134115E-04	-.153547E-04	0.74	-.148276E-05	-.119215E-04
-.146225E-04	-.166274E-04	0.73	-.165585E-05	-.129440E-04
-.159636E-04	-.180231E-04	0.72	-.185231E-05	-.140699E-04
-.174509E-04	-.195550E-04	0.71	-.207567E-05	-.153108E-04
-.191025E-04	-.212379E-04	0.70	-.233099E-05	-.166801E-04
-.209393E-04	-.230884E-04	0.69	-.262040E-05	-.181928E-04
-.229848E-04	-.251247E-04	0.68	-.295236E-05	-.198658E-04
-.252662E-04	-.273669E-04	0.67	-.333278E-05	-.217184E-04
-.278159E-04	-.298369E-04	0.66	-.376972E-05	-.237728E-04
-.306733E-04	-.325600E-04	0.65	-.427249E-05	-.260541E-04
-.338863E-04	-.355689E-04	0.64	-.485137E-05	-.285914E-04
-.375072E-04	-.389104E-04	0.63	-.551746E-05	-.314167E-04
-.415789E-04	-.426468E-04	0.62	-.628373E-05	-.345634E-04
-.461127E-04	-.468389E-04	0.61	-.716943E-05	-.380653E-04
-.510807E-04	-.514899E-04	0.60	-.820903E-05	-.419585E-04
-.564769E-04	-.564556E-04	0.59	-.946224E-05	-.462962E-04
-.625142E-04	-.613936E-04	0.58	-.110112E-04	-.511796E-04
-.699572E-04	-.659288E-04	0.57	-.129204E-04	-.567947E-04
-.803793E-04	-.702683E-04	0.56	-.151400E-04	-.634148E-04
-.958047E-04	-.763227E-04	0.55	-.173744E-04	-.712893E-04
-.116976E-03	-.887984E-04	0.54	-.190336E-04	-.803473E-04
-.139873E-03	-.114759E-03	0.53	-.194911E-04	-.897498E-04
-.151605E-03	-.159364E-03	0.52	-.188972E-04	-.975710E-04
-.129451E-03	-.216103E-03	0.51	-.195629E-04	-.101216E-03

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 31			CHI 32	
REAL	IMAGINARY	Y	REAL	IMAGINARY
-.493646E-04	-.253261E-03 *	0.50 *	-.273218E-04	-.993277E-04
0.900649E-04	-.204916E-03 *	0.49 *	-.514171E-04	-.955246E-04
0.228941E-03	0.178299E-04 *	0.48 *	-.100847E-03	-.102978E-03
0.208156E-03	0.477471E-03 *	0.47 *	-.175641E-03	-.146753E-03
-.233380E-03	0.111554E-02 *	0.46 *	-.254072E-03	-.258916E-03
-.138035E-02	0.163508E-02 *	0.45 *	-.281352E-03	-.461543E-03
-.334795E-02	0.142512E-02 *	0.44 *	-.170337E-03	-.736834E-03
-.579068E-02	-.371468E-03 *	0.43 *	0.173255E-03	-.992241E-03
-.761430E-02	-.454696E-02 *	0.42 *	0.793677E-03	-.103965E-02
-.688222E-02	-.112459E-01 *	0.41 *	0.160306E-02	-.615397E-03
-.114624E-02	-.192280E-01 *	0.40 *	0.230282E-02	0.535327E-03
0.116407E-01	-.252774E-01 *	0.39 *	0.235699E-02	0.250608E-02
0.316868E-01	-.241960E-01 *	0.38 *	0.107120E-02	0.504109E-02
0.557765E-01	-.979419E-02 *	0.37 *	-.219015E-02	0.738411E-02
0.762234E-01	0.229595E-01 *	0.36 *	-.766651E-02	0.826258E-02
0.811726E-01	0.749434E-01 *	0.35 *	-.148308E-01	0.609418E-02
0.568602E-01	0.139915E 00 *	0.34 *	-.221330E-01	-.555565E-03
-.815221E-02	0.202841E 00 *	0.33 *	-.270228E-01	-.123347E-01
-.117576E 00	0.240807E 00 *	0.32 *	-.263694E-01	-.284626E-01
-.262443E 00	0.227209E 00 *	0.31 *	-.172761E-01	-.463324E-01
-.418608E 00	0.138924E 00 *	0.30 *	0.186487E-02	-.615953E-01
-.548430E 00	-.350980E-01 *	0.29 *	0.303753E-01	-.688583E-01
-.607322E 00	-.286323E 00 *	0.28 *	0.647101E-01	-.629380E-01
-.554328E 00	-.582974E 00 *	0.27 *	0.985944E-01	-.404036E-01
-.364324E 00	-.872282E 00 *	0.26 *	0.124002E 00	-.984390E-03
-.384591E-01	-.108918E 01 *	0.25 *	0.132844E 00	0.516143E-01
0.390561E 00	-.117005E 01 *	0.24 *	0.118993E 00	0.109834E 00
0.860616E 00	-.106824E 01 *	0.23 *	0.891132E-01	0.163421E 00
0.129007E 01	-.767514E 00 *	0.22 *	0.187610E-01	0.201431E 00
0.159356E 01	-.289372E 00 *	0.21 *	-.575916E-01	0.214609E 00
0.169999E 01	0.307872E 00 *	0.20 *	-.137707E 00	0.197571E 00
0.156842E 01	0.938592E 00 *	0.19 *	-.208658E 00	0.150206E 00
0.119792E 01	0.150580E 01 *	0.18 *	-.258356E 00	0.779645E-01
0.628953E 00	0.191988E 01 *	0.17 *	-.277922E 00	-.907387E-02
-.637702E-01	0.211571E 01 *	0.16 *	-.263363E 00	-.980936E-01
-.785188E 00	0.206447E 01 *	0.15 *	-.216209E 00	-.175960E 00
-.143713E 01	0.177778E 01 *	0.14 *	-.143007E 00	-.231601E 00
-.193504E 01	0.130381E 01 *	0.13 *	-.538957E-01	-.257854E 00
-.222078E 01	0.716741E 00 *	0.12 *	0.393877E-01	-.252453E 00
-.226940E 01	0.102396E 00 *	0.11 *	0.125585E 00	-.218034E 00
-.208922E 01	-.456846E 00 *	0.10 *	0.195656E 00	-.161291E 00
-.171627E 01	-.894904E 00 *	0.09 *	0.243883E 00	-.915467E-01
-.120488E 01	-.117060E 01 *	0.08 *	0.268216E 00	-.190740E-01
-.617078E 00	-.127115E 01 *	0.07 *	0.269915E 00	0.464807E-01
-.127602E-01	-.121075E 01 *	0.06 *	0.252674E 00	0.973439E-01
0.557440E 00	-.102529E 01 *	0.05 *	0.221477E 00	0.128394E 00
0.105595E 01	-.764715E 00 *	0.04 *	0.181459E 00	0.137462E 00
0.145871E 01	-.484456E 00 *	0.03 *	0.136986E 00	0.125217E 00
0.175299E 01	-.237265E 00 *	0.02 *	0.910873E-01	0.947787E-01
0.193378E 01	-.663655E-01 *	0.01 *	0.453113E-01	0.511503E-01
0.100000E 01	-.113000E-16 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI_{NM}, FOR ALPHA=1.0, REY NUM=6667

CHI 33 REAL	CHI 33 IMAGINARY	Y	CHI 34 REAL	CHI 34 IMAGINARY
0.0	0.0	1.00	0.0	0.0
0.613372E-04	-0.292573E-04	0.99	-0.445394E-05	-0.216074E-04
-0.192879E-05	-0.143579E-04	0.98	-0.474592E-05	-0.549482E-06
0.278091E-06	-0.119886E-05	0.97	-0.359075E-06	-0.185537E-06
0.404705E-05	0.180855E-06	0.96	0.387794E-06	-0.127834E-05
0.520712E-05	-0.529793E-06	0.95	0.254722E-06	-0.170656E-05
0.548843E-05	-0.913461E-06	0.94	0.155029E-06	-0.182737E-05
0.574014E-05	-0.102984E-05	0.93	0.138380E-06	-0.191712E-05
0.608019E-05	-0.109687E-05	0.92	0.144642E-06	-0.203110E-05
0.647558E-05	-0.117831E-05	0.91	0.150778E-06	-0.216391E-05
0.690775E-05	-0.127642E-05	0.90	0.154576E-06	-0.230980E-05
0.737601E-05	-0.138712E-05	0.89	0.157289E-06	-0.246822E-05
0.788460E-05	-0.150980E-05	0.88	0.159450E-06	-0.264046E-05
0.843804E-05	-0.164577E-05	0.87	0.161016E-06	-0.282809E-05
0.904085E-05	-0.179681E-05	0.86	0.161767E-06	-0.303267E-05
0.969784E-05	-0.196486E-05	0.85	0.161492E-06	-0.325591E-05
0.104144E-04	-0.215208E-05	0.84	0.159931E-06	-0.349967E-05
0.111964E-04	-0.236090E-05	0.83	0.156786E-06	-0.376606E-05
0.120504E-04	-0.259412E-05	0.82	0.151704E-06	-0.405739E-05
0.129840E-04	-0.285493E-05	0.81	0.144262E-06	-0.437627E-05
0.140051E-04	-0.314700E-05	0.80	0.133956E-06	-0.472561E-05
0.151231E-04	-0.347454E-05	0.79	0.120185E-06	-0.510867E-05
0.163482E-04	-0.384239E-05	0.78	0.102230E-06	-0.552907E-05
0.176916E-04	-0.425614E-05	0.77	0.792346E-07	-0.599092E-05
0.191663E-04	-0.472226E-05	0.76	0.501756E-07	-0.649879E-05
0.207865E-04	-0.524825E-05	0.75	0.138284E-07	-0.705784E-05
0.225684E-04	-0.584285E-05	0.74	-0.312686E-07	-0.767388E-05
0.245302E-04	-0.651606E-05	0.73	-0.868534E-07	-0.835347E-05
0.266925E-04	-0.727911E-05	0.72	-0.154990E-06	-0.910397E-05
0.290774E-04	-0.814453E-05	0.71	-0.238155E-06	-0.993367E-05
0.317081E-04	-0.912746E-05	0.70	-0.339428E-06	-0.108518E-04
0.346081E-04	-0.102497E-04	0.69	-0.462798E-06	-0.118690E-04
0.378069E-04	-0.115460E-04	0.68	-0.613411E-06	-0.129977E-04
0.413564E-04	-0.130661E-04	0.67	-0.797182E-06	-0.142532E-04
0.453556E-04	-0.148521E-04	0.66	-0.101895E-05	-0.156547E-04
0.499508E-04	-0.168736E-04	0.65	-0.127935E-05	-0.172224E-04
0.552427E-04	-0.189363E-04	0.64	-0.157404E-05	-0.189701E-04
0.610292E-04	-0.206879E-04	0.63	-0.190398E-05	-0.208928E-04
0.664628E-04	-0.219744E-04	0.62	-0.230681E-05	-0.229625E-04
0.700529E-04	-0.237729E-04	0.61	-0.290429E-05	-0.251648E-04
0.708639E-04	-0.294391E-04	0.60	-0.392068E-05	-0.276064E-04
0.716608E-04	-0.448676E-04	0.59	-0.557219E-05	-0.306809E-04
0.832385E-04	-0.748768E-04	0.58	-0.772085E-05	-0.351506E-04
0.125779E-03	-0.113370E-03	0.57	-0.932683E-05	-0.418408E-04
0.219253E-03	-0.129065E-03	0.56	-0.809464E-05	-0.506116E-04
0.355130E-03	-0.580177E-04	0.55	-0.117783E-05	-0.586420E-04
0.452384E-03	0.174956E-03	0.54	0.120513E-04	-0.590261E-04
0.325119E-03	0.582686E-03	0.53	0.250348E-04	-0.419580E-04
-0.281494E-03	0.990946E-03	0.52	0.190964E-04	-0.134187E-05
-0.152174E-02	0.921689E-03	0.51	-0.359495E-04	0.521348E-04

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 33			CHI 34	
REAL	IMAGINARY	Y	REAL	IMAGINARY
-.312963E-02	-.382666E-03 *	0.50 *	-.168240E-03	0.757481E-04
-.405881E-02	-.362565E-02 *	0.49 *	-.373059E-03	-.106072E-04
-.236534E-02	-.872795E-02 *	0.48 *	-.571370E-03	-.302136E-03
0.427217E-02	-.138690E-01 *	0.47 *	-.581426E-03	-.845574E-03
0.171096E-01	-.148362E-01 *	0.46 *	-.141873E-03	-.154069E-02
0.341347E-01	-.551643E-02 *	0.45 *	0.977452E-03	-.204763E-02
0.479946E-01	0.197148E-01 *	0.44 *	0.277327E-02	-.177496E-02
0.456334E-01	0.616541E-01 *	0.43 *	0.477414E-02	-.309863E-04
0.113301E-01	0.111222E 00 *	0.42 *	0.590284E-02	0.362380E-02
-.661083E-01	0.146342E 00 *	0.41 *	0.460019E-02	0.888827E-02
-.183307E 00	0.134038E 00 *	0.40 *	-.673025E-03	0.142918E-01
-.313277E 00	0.400475E-01 *	0.39 *	-.105893E-01	0.171126E-01
-.402925E 00	-.154651E 00 *	0.38 *	-.240131E-01	0.139640E-01
-.382147E 00	-.435089E 00 *	0.37 *	-.374034E-01	0.170106E-02
-.186001E 00	-.739545E 00 *	0.36 *	-.450418E-01	-.203397E-01
0.214441E 00	-.961724E 00 *	0.35 *	-.403699E-01	-.494492E-01
0.782952E 00	-.973334E 00 *	0.34 *	-.183053E-01	-.786532E-01
0.140425E 01	-.665094E 00 *	0.33 *	0.221029E-01	-.976954E-01
0.189660E 01	0.472582E-02 *	0.32 *	0.756892E-01	-.956237E-01
0.205413E 01	0.971670E 00 *	0.31 *	0.130883E 00	-.645084E-01
0.171051E 01	0.205437E 01 *	0.30 *	0.171713E 00	-.314542E-02
0.805105E 00	0.298269E 01 *	0.29 *	0.181913E 00	0.806746E-01
-.572250E 00	0.346277E 01 *	0.28 *	0.150076E 00	0.170479E 00
-.217773E 01	0.326264E 01 *	0.27 *	0.742047E-01	0.244384E 00
-.365886E 01	0.229214E 01 *	0.26 *	-.359926E-01	0.280658E 00
-.463996E 01	0.649591E 00 *	0.25 *	-.160145E 00	0.264023E 00
-.482391E 01	-.138314E 01 *	0.24 *	-.271603E 00	0.190711E 00
-.407968E 01	-.339977E 01 *	0.23 *	-.344044E 00	0.705820E-01
-.248782E 01	-.496768E 01 *	0.22 *	-.358400E 00	-.745053E-01
-.329197E 00	-.573674E 01 *	0.21 *	-.308047E 00	-.215725E 00
0.198021E 01	-.552753E 01 *	0.20 *	-.200729E 00	-.324276E 00
0.398943E 01	-.437416E 01 *	0.19 *	-.566595E-01	-.378341E 00
0.531875E 01	-.251127E 01 *	0.18 *	0.964066E-01	-.368090E 00
0.574313E 01	-.311642E 00 *	0.17 *	0.229908E 00	-.297474E 00
0.523262E 01	0.180576E 01 *	0.16 *	0.320858E 00	-.182551E 00
0.394310E 01	0.347121E 01 *	0.15 *	0.356420E 00	-.470715E-01
0.216507E 01	0.443863E 01 *	0.14 *	0.335642E 00	0.832953E-01
0.248054E 00	0.462339E 01 *	0.13 *	0.268286E 00	0.186513E 00
-.147761E 01	0.409921E 01 *	0.12 *	0.171400E 00	0.248215E 00
-.276291E 01	0.306094E 01 *	0.11 *	0.648016E-01	0.263517E 00
-.347444E 01	0.176733E 01 *	0.10 *	-.333056E-01	0.236540E 00
-.359817E 01	0.479969E 00 *	0.09 *	-.109606E 00	0.178192E 00
-.321799E 01	-.587557E 00 *	0.08 *	-.157290E 00	0.103005E 00
-.247913E 01	-.130160E 01 *	0.07 *	-.175982E 00	0.259125E-01
-.154805E 01	-.161881E 01 *	0.06 *	-.170334E 00	-.403670E-01
-.578504E 00	-.157756E 01 *	0.05 *	-.147861E 00	-.869600E-01
0.310079E 00	-.127626E 01 *	0.04 *	-.116644E 00	-.109443E 00
0.104025E 01	-.845419E 00 *	0.03 *	-.834225E-01	-.107606E 00
0.157229E 01	-.419432E 00 *	0.02 *	-.524071E-01	-.846986E-01
0.189257E 01	-.112362E 00 *	0.01 *	-.249398E-01	-.464627E-01
0.100000E 01	0.566795E-16 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

CHI 35			CHI 36	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.986845E 05	0.844915E 05	* 0.99 *	-.310252E 00	0.409978E-01
-.113383E 06	-.613253E 04	* 0.98 *	-.220212E 00	-.161400E 00
-.108521E 06	-.112776E 06	* 0.97 *	-.696772E-01	-.369776E 00
-.351852E 05	-.213241E 06	* 0.96 *	0.210387E 00	-.475024E 00
0.105915E 06	-.252501E 06	* 0.95 *	0.545635E 00	-.367523E 00
0.266908E 06	-.185361E 06	* 0.94 *	0.779977E 00	-.200062E-01
0.369305E 06	-.105479E 05	* 0.93 *	0.754173E 00	0.465944E 00
0.345226E 06	0.214323E 06	* 0.92 *	0.408516E 00	0.884684E 00
0.180860E 06	0.393312E 06	* 0.91 *	-.157340E 00	0.102559E 01
-.670716E 05	0.441028E 06	* 0.90 *	-.716428E 00	0.792958E 00
-.296273E 06	0.330832E 06	* 0.89 *	-.102865E 01	0.269327E 00
-.412228E 06	0.111052E 06	* 0.88 *	-.969199E 00	-.323099E 00
-.377119E 06	-.121767E 06	* 0.87 *	-.590781E 00	-.741134E 00
-.224664E 06	-.275095E 06	* 0.86 *	-.837128E-01	-.844827E 00
-.346845E 05	-.305296E 06	* 0.85 *	0.334722E 00	-.653220E 00
0.113019E 06	-.230118E 06	* 0.84 *	0.529016E 00	-.307819E 00
0.176055E 06	-.107110E 06	* 0.83 *	0.491241E 00	0.203329E-01
0.159277E 06	0.312973E 04	* 0.82 *	0.311699E 00	0.217058E 00
0.984898E 05	0.653019E 05	* 0.81 *	0.108582E 00	0.259781E 00
0.340229E 05	0.766583E 05	* 0.80 *	-.342897E-01	0.196727E 00
-.879625E 04	0.560670E 05	* 0.79 *	-.917408E-01	0.990897E-01
-.246469E 05	0.268957E 05	* 0.78 *	-.843359E-01	0.203246E-01
-.217062E 05	0.479166E 04	* 0.77 *	-.491342E-01	-.194410E-01
-.116734E 05	-.551442E 04	* 0.76 *	-.156152E-01	-.264292E-01
-.284826E 04	-.678389E 04	* 0.75 *	0.347732E-02	-.171714E-01
0.173559E 04	-.405023E 04	* 0.74 *	0.885982E-02	-.566712E-02
0.271929E 04	-.108582E 04	* 0.73 *	0.683422E-02	0.148709E-02
0.197139E 04	0.579348E 03	* 0.72 *	0.313210E-02	0.376726E-02
0.969802E 03	0.109193E 04	* 0.71 *	0.592326E-03	0.326066E-02
0.345024E 03	0.797104E 03	* 0.70 *	-.365628E-03	0.202305E-02
0.123239E 03	0.476288E 03	* 0.69 *	-.374944E-03	0.109665E-02
0.115009E 03	0.261545E 03	* 0.68 *	-.106020E-03	0.664747E-03
0.157452E 03	0.169269E 03	* 0.67 *	0.987193E-04	0.541275E-03
0.179442E 03	0.143817E 03	* 0.66 *	0.174029E-03	0.521476E-03
0.173775E 03	0.137076E 03	* 0.65 *	0.170260E-03	0.501191E-03
0.154796E 03	0.128281E 03	* 0.64 *	0.143410E-03	0.458933E-03
0.134654E 03	0.114940E 03	* 0.63 *	0.120611E-03	0.406150E-03
0.118035E 03	0.100364E 03	* 0.62 *	0.106559E-03	0.355638E-03
0.104974E 03	0.871970E 02	* 0.61 *	0.977363E-04	0.312635E-03
0.942416E 02	0.762082E 02	* 0.60 *	0.906697E-04	0.276993E-03
0.849133E 02	0.671175E 02	* 0.59 *	0.839076E-04	0.246923E-03
0.765826E 02	0.594365E 02	* 0.58 *	0.772953E-04	0.220926E-03
0.691160E 02	0.528097E 02	* 0.57 *	0.710355E-04	0.198139E-03
0.624465E 02	0.470313E 02	* 0.56 *	0.652632E-04	0.178044E-03
0.565005E 02	0.419742E 02	* 0.55 *	0.599945E-04	0.160323E-03
0.511942E 02	0.375409E 02	* 0.54 *	0.551892E-04	0.144666E-03
0.464479E 02	0.336459E 02	* 0.53 *	0.507988E-04	0.130800E-03
0.421920E 02	0.302141E 02	* 0.52 *	0.467827E-04	0.118486E-03
0.383675E 02	0.271809E 02	* 0.51 *	0.431073E-04	0.107519E-03

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 35			CHI 36	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.349241E 02	0.244922E 02 *	0.50 *	0.397428E-04	0.977285E-04
0.318183E 02	0.221024E 02 *	0.49 *	0.366619E-04	0.889664E-04
0.290124E 02	0.199730E 02 *	0.48 *	0.338394E-04	0.811076E-04
0.264732E 02	0.180710E 02 *	0.47 *	0.312521E-04	0.740442E-04
0.241718E 02	0.163683E 02 *	0.46 *	0.288788E-04	0.676829E-04
0.220827E 02	0.148409E 02 *	0.45 *	0.267002E-04	0.619430E-04
0.201836E 02	0.134679E 02 *	0.44 *	0.246990E-04	0.567543E-04
0.184550E 02	0.122313E 02 *	0.43 *	0.228593E-04	0.520557E-04
0.168794E 02	0.111156E 02 *	0.42 *	0.211668E-04	0.477938E-04
0.154416E 02	0.101072E 02 *	0.41 *	0.196086E-04	0.439220E-04
0.141280E 02	0.919434E 01 *	0.40 *	0.181730E-04	0.403990E-04
0.129265E 02	0.836671E 01 *	0.39 *	0.168492E-04	0.371889E-04
0.118264E 02	0.761526E 01 *	0.38 *	0.156277E-04	0.342597E-04
0.108182E 02	0.693204E 01 *	0.37 *	0.144996E-04	0.315832E-04
0.989331E 01	0.631007E 01 *	0.36 *	0.134570E-04	0.291343E-04
0.904412E 01	0.574318E 01 *	0.35 *	0.124927E-04	0.268910E-04
0.826382E 01	0.522590E 01 *	0.34 *	0.116002E-04	0.248333E-04
0.754629E 01	0.475340E 01 *	0.33 *	0.107734E-04	0.229437E-04
0.688604E 01	0.432140E 01 *	0.32 *	0.100069E-04	0.212063E-04
0.627812E 01	0.392607E 01 *	0.31 *	0.929585E-05	0.196071E-04
0.571810E 01	0.356401E 01 *	0.30 *	0.863559E-05	0.181334E-04
0.520195E 01	0.323218E 01 *	0.29 *	0.802203E-05	0.167738E-04
0.472607E 01	0.292787E 01 *	0.28 *	0.745140E-05	0.155180E-04
0.428717E 01	0.264865E 01 *	0.27 *	0.692023E-05	0.143568E-04
0.388230E 01	0.239233E 01 *	0.26 *	0.642534E-05	0.132817E-04
0.350879E 01	0.215697E 01 *	0.25 *	0.596383E-05	0.122853E-04
0.316421E 01	0.194080E 01 *	0.24 *	0.553303E-05	0.113606E-04
0.284637E 01	0.174226E 01 *	0.23 *	0.513046E-05	0.105014E-04
0.255326E 01	0.155990E 01 *	0.22 *	0.475387E-05	0.970197E-05
0.228308E 01	0.139246E 01 *	0.21 *	0.440116E-05	0.895718E-05
0.203419E 01	0.123877E 01 *	0.20 *	0.407039E-05	0.826226E-05
0.180509E 01	0.109780E 01 *	0.19 *	0.375979E-05	0.761288E-05
0.159445E 01	0.968605E 00 *	0.18 *	0.346767E-05	0.700503E-05
0.140102E 01	0.850338E 00 *	0.17 *	0.319252E-05	0.643506E-05
0.122371E 01	0.742237E 00 *	0.16 *	0.293288E-05	0.589958E-05
0.106149E 01	0.643613E 00 *	0.15 *	0.268743E-05	0.539547E-05
0.913474E 00	0.553848E 00 *	0.14 *	0.245490E-05	0.491983E-05
0.778826E 00	0.472385E 00 *	0.13 *	0.223413E-05	0.446997E-05
0.656811E 00	0.398724E 00 *	0.12 *	0.202401E-05	0.404338E-05
0.546761E 00	0.332417E 00 *	0.11 *	0.182350E-05	0.363772E-05
0.448069E 00	0.273070E 00 *	0.10 *	0.163161E-05	0.325079E-05
0.360197E 00	0.220372E 00 *	0.09 *	0.144742E-05	0.288051E-05
0.282766E 00	0.174113E 00 *	0.08 *	0.127006E-05	0.252495E-05
0.215782E 00	0.133955E 00 *	0.07 *	0.109875E-05	0.218216E-05
0.159415E 00	0.984436E-01 *	0.06 *	0.932632E-06	0.185013E-05
0.110981E 00	0.639175E-01 *	0.05 *	0.770160E-06	0.152676E-05
0.569427E-01	0.307429E-01 *	0.04 *	0.608298E-06	0.121186E-05
-0.238926E-01	0.352643E-01 *	0.03 *	0.446356E-06	0.912363E-06
-0.693322E-01	0.195124E 00 *	0.02 *	0.306531E-06	0.640927E-06
0.341155E 00	0.541584E 00 *	0.01 *	0.264855E-06	0.358532E-06
0.100000E 01	-0.757499E-16 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

CHI 37			CHI 38	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.134711E-03	-.874571E-06	* 0.99 *	-.129874E-05	0.838240E-05
-.959086E-05	0.284002E-04	* 0.98 *	0.168317E-05	0.859389E-06
-.141805E-05	0.228167E-05	* 0.97 *	0.129988E-06	0.108324E-06
-.716364E-05	-.378782E-05	* 0.96 *	-.301570E-06	0.411013E-06
-.100301E-04	-.349531E-05	* 0.95 *	-.309469E-06	0.592639E-06
-.109173E-04	-.298272E-05	* 0.94 *	-.285443E-06	0.652646E-06
-.114900E-04	-.295489E-05	* 0.93 *	-.288835E-06	0.688549E-06
-.121873E-04	-.310529E-05	* 0.92 *	-.304501E-06	0.730613E-06
-.130066E-04	-.327556E-05	* 0.91 *	-.322504E-06	0.780120E-06
-.139127E-04	-.344218E-05	* 0.90 *	-.341052E-06	0.835072E-06
-.148997E-04	-.361212E-05	* 0.89 *	-.360526E-06	0.895043E-06
-.159755E-04	-.379005E-05	* 0.88 *	-.381288E-06	0.960472E-06
-.171502E-04	-.397688E-05	* 0.87 *	-.403484E-06	0.103199E-05
-.184345E-04	-.417234E-05	* 0.86 *	-.427191E-06	0.111026E-05
-.198398E-04	-.437599E-05	* 0.85 *	-.452481E-06	0.119600E-05
-.213786E-04	-.458729E-05	* 0.84 *	-.479429E-06	0.129000E-05
-.230650E-04	-.480549E-05	* 0.83 *	-.508112E-06	0.139314E-05
-.249150E-04	-.502952E-05	* 0.82 *	-.538602E-06	0.150642E-05
-.269461E-04	-.525797E-05	* 0.81 *	-.570962E-06	0.163096E-05
-.291783E-04	-.548891E-05	* 0.80 *	-.605244E-06	0.176802E-05
-.316338E-04	-.571986E-05	* 0.79 *	-.641485E-06	0.191900E-05
-.343377E-04	-.594758E-05	* 0.78 *	-.679695E-06	0.208550E-05
-.373181E-04	-.616779E-05	* 0.77 *	-.719855E-06	0.226932E-05
-.406067E-04	-.637483E-05	* 0.76 *	-.761901E-06	0.247249E-05
-.442404E-04	-.656154E-05	* 0.75 *	-.805733E-06	0.269734E-05
-.482617E-04	-.672025E-05	* 0.74 *	-.851228E-06	0.294648E-05
-.527184E-04	-.684509E-05	* 0.73 *	-.898234E-06	0.322282E-05
-.576572E-04	-.693281E-05	* 0.72 *	-.946428E-06	0.352940E-05
-.631135E-04	-.697277E-05	* 0.71 *	-.994895E-06	0.386957E-05
-.691109E-04	-.691429E-05	* 0.70 *	-.104157E-05	0.424760E-05
-.757125E-04	-.662071E-05	* 0.69 *	-.108348E-05	0.467052E-05
-.831583E-04	-.588276E-05	* 0.68 *	-.111974E-05	0.515007E-05
-.920314E-04	-.464297E-05	* 0.67 *	-.115835E-05	0.570077E-05
-.103148E-03	-.353863E-05	* 0.66 *	-.122251E-05	0.632709E-05
-.116633E-03	-.446862E-05	* 0.65 *	-.134027E-05	0.699735E-05
-.129893E-03	-.100483E-04	* 0.64 *	-.149436E-05	0.762328E-05
-.135702E-03	-.201383E-04	* 0.63 *	-.152839E-05	0.810142E-05
-.124297E-03	-.247716E-04	* 0.62 *	-.107959E-05	0.849108E-05
-.952226E-04	0.226854E-05	* 0.61 *	0.277845E-06	0.933011E-05
-.805698E-04	0.967529E-04	* 0.60 *	0.245223E-05	0.118567E-04
-.166198E-03	0.267016E-03	* 0.59 *	0.382875E-05	0.175767E-04
-.474158E-03	0.422170E-03	* 0.58 *	0.528686E-06	0.265184E-04
-.105729E-02	0.303376E-03	* 0.57 *	-.124755E-04	0.342070E-04
-.169168E-02	-.481199E-03	* 0.56 *	-.365596E-04	0.292179E-04
-.166269E-02	-.218473E-02	* 0.55 *	-.609193E-04	-.448816E-05
0.200500E-03	-.436480E-02	* 0.54 *	-.548478E-04	-.755871E-04
0.490080E-02	-.525676E-02	* 0.53 *	0.288737E-04	-.163085E-03
0.119000E-01	-.167291E-02	* 0.52 *	0.227225E-03	-.193614E-03
0.174224E-01	0.975072E-02	* 0.51 *	0.513353E-03	-.417228E-04

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 37			CHI 38	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.137127E-01	0.294808E-01 *	0.50 *	0.735476E-03	0.417852E-03
-.890784E-02	0.509002E-01 *	0.49 *	0.597120E-03	0.119334E-02
-.558892E-01	0.575069E-01 *	0.48 *	-.257380E-03	0.202722E-02
-.119138E 00	0.253300E-01 *	0.47 *	-.201503E-02	0.230889E-02
-.168958E 00	-.662905E-01 *	0.46 *	-.436960E-02	0.117916E-02
-.154559E 00	-.216209E 00 *	0.45 *	-.626207E-02	-.207994E-02
-.200033E-01	-.382227E 00 *	0.44 *	-.593062E-02	-.741504E-02
0.263393E 00	-.473854E 00 *	0.43 *	-.147688E-02	-.133823E-01
0.657727E 00	-.370575E 00 *	0.42 *	0.805543E-02	-.169589E-01
0.103248E 01	0.288856E-01 *	0.41 *	0.214327E-01	-.141911E-01
0.117571E 01	0.737012E 00 *	0.40 *	0.344692E-01	-.179944E-02
0.856973E 00	0.161647E 01 *	0.39 *	0.404657E-01	0.206565E-01
-.661970E-01	0.236587E 01 *	0.38 *	0.322249E-01	0.489712E-01
-.153453E 01	0.258201E 01 *	0.37 *	0.529949E-02	0.739824E-01
-.322124E 01	0.189925E 01 *	0.36 *	-.386734E-01	0.835541E-01
-.456519E 01	0.167129E 00 *	0.35 *	-.901765E-01	0.667499E-01
-.492150E 01	-.240520E 01 *	0.34 *	-.132947E 00	0.189554E-01
-.379690E 01	-.521426E 01 *	0.33 *	-.148421E 00	-.541252E-01
-.108823E 01	-.738288E 01 *	0.32 *	-.122399E 00	-.135695E 00
0.277748E 01	-.802151E 01 *	0.31 *	-.515932E-01	-.201418E 00
0.688022E 01	-.655066E 01 *	0.30 *	0.527306E-01	-.226703E 00
0.100380E 02	-.296517E 01 *	0.29 *	0.165999E 00	-.195421E 00
0.111697E 02	0.207213E 01 *	0.28 *	0.256694E 00	-.106815E 00
0.966683E 01	0.736341E 01 *	0.27 *	0.296002E 00	0.222583E-01
0.563832E 01	0.115072E 02 *	0.26 *	0.267450E 00	0.161026E 00
-.699398E-01	0.133223E 02 *	0.25 *	0.173025E 00	0.273495E 00
-.609648E 01	0.122185E 02 *	0.24 *	0.334518E-01	0.329268E 00
-.109558E 02	0.838673E 01 *	0.23 *	-.117564E 00	0.312797E 00
-.134686E 02	0.274442E 01 *	0.22 *	-.243190E 00	0.227938E 00
-.130889E 02	-.333921E 01 *	0.21 *	-.314048E 00	0.964364E-01
-.100285E 02	-.844130E 01 *	0.20 *	-.316092E 00	-.489029E-01
-.515230E 01	-.114739E 02 *	0.19 *	-.253475E 00	-.173876E 00
0.304419E 00	-.119452E 02 *	0.18 *	-.145918E 00	-.252146E 00
0.509343E 01	-.100271E 02 *	0.17 *	-.219540E-01	-.271351E 00
0.827275E 01	-.643321E 01 *	0.16 *	0.894794E-01	-.234638E 00
0.940014E 01	-.216636E 01 *	0.15 *	0.166423E 00	-.157769E 00
0.856542E 01	0.177224E 01 *	0.14 *	0.198298E 00	-.633120E-01
0.627938E 01	0.462590E 01 *	0.13 *	0.186589E 00	0.259861E-01
0.327559E 01	0.601946E 01 *	0.12 *	0.142271E 00	0.926672E-01
0.295513E 00	0.597415E 01 *	0.11 *	0.813216E-01	0.127629E 00
-.208285E 01	0.482130E 01 *	0.10 *	0.198894E-01	0.130481E 00
-.353764E 01	0.305923E 01 *	0.09 *	-.295323E-01	0.107699E 00
-.401194E 01	0.120210E 01 *	0.08 *	-.601636E-01	0.695913E-01
-.365736E 01	-.339730E 00 *	0.07 *	-.711218E-01	0.271279E-01
-.274378E 01	-.132710E 01 *	0.06 *	-.661369E-01	-.105210E-01
-.156771E 01	-.170458E 01 *	0.05 *	-.514719E-01	-.373446E-01
-.382971E 00	-.156989E 01 *	0.04 *	-.337436E-01	-.507476E-01
0.634583E 00	-.111810E 01 *	0.03 *	-.181778E-01	-.510091E-01
0.138953E 01	-.578657E 00 *	0.02 *	-.759324E-02	-.403695E-01
0.184631E 01	-.158650E 00 *	0.01 *	-.217879E-02	-.221361E-01
0.100000E 01	-.513041E-16 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI_{NM}, FOR ALPHA=1.0, REY NUM=6667

CHI_{41} REAL	CHI_{41} IMAGINARY	Y	CHI_{42} REAL	CHI_{42} IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.301625E-04	-.824632E-05	* 0.99 *	-.942387E-05	0.191953E-04
-.192820E-05	0.448154E-05	* 0.98 *	0.276564E-05	0.187610E-05
-.491414E-06	-.907035E-06	* 0.97 *	-.670563E-06	0.213501E-06
-.152882E-05	-.182449E-05	* 0.96 *	-.142180E-05	0.793065E-06
-.190401E-05	-.181263E-05	* 0.95 *	-.146203E-05	0.104738E-05
-.202923E-05	-.185455E-05	* 0.94 *	-.150612E-05	0.112640E-05
-.214856E-05	-.196564E-05	* 0.93 *	-.159633E-05	0.119251E-05
-.229140E-05	-.209785E-05	* 0.92 *	-.170320E-05	0.127175E-05
-.245173E-05	-.224106E-05	* 0.91 *	-.182001E-05	0.136140E-05
-.262781E-05	-.239674E-05	* 0.90 *	-.194721E-05	0.146007E-05
-.282093E-05	-.256688E-05	* 0.89 *	-.208632E-05	0.156838E-05
-.303296E-05	-.275304E-05	* 0.88 *	-.223862E-05	0.168740E-05
-.326592E-05	-.295676E-05	* 0.87 *	-.240541E-05	0.181830E-05
-.352201E-05	-.317977E-05	* 0.86 *	-.258813E-05	0.196234E-05
-.380366E-05	-.342396E-05	* 0.85 *	-.278837E-05	0.212092E-05
-.411360E-05	-.369146E-05	* 0.84 *	-.300791E-05	0.229563E-05
-.445490E-05	-.398463E-05	* 0.83 *	-.324871E-05	0.248823E-05
-.483099E-05	-.430607E-05	* 0.82 *	-.351299E-05	0.270072E-05
-.524572E-05	-.465870E-05	* 0.81 *	-.380318E-05	0.293533E-05
-.570341E-05	-.504574E-05	* 0.80 *	-.412202E-05	0.319457E-05
-.620893E-05	-.547080E-05	* 0.79 *	-.447254E-05	0.348128E-05
-.676776E-05	-.593789E-05	* 0.78 *	-.485816E-05	0.379866E-05
-.738609E-05	-.645149E-05	* 0.77 *	-.528266E-05	0.415035E-05
-.807090E-05	-.701660E-05	* 0.76 *	-.575031E-05	0.454044E-05
-.883012E-05	-.763880E-05	* 0.75 *	-.626588E-05	0.497358E-05
-.967271E-05	-.832434E-05	* 0.74 *	-.683471E-05	0.545506E-05
-.106089E-04	-.908022E-05	* 0.73 *	-.746282E-05	0.599091E-05
-.116501E-04	-.991427E-05	* 0.72 *	-.815694E-05	0.658799E-05
-.128097E-04	-.108353E-04	* 0.71 *	-.892467E-05	0.725413E-05
-.141026E-04	-.118531E-04	* 0.70 *	-.977456E-05	0.799830E-05
-.155461E-04	-.129789E-04	* 0.69 *	-.107163E-04	0.883080E-05
-.171599E-04	-.142250E-04	* 0.68 *	-.117607E-04	0.976344E-05
-.189666E-04	-.156055E-04	* 0.67 *	-.129201E-04	0.108098E-04
-.209922E-04	-.171362E-04	* 0.66 *	-.142084E-04	0.119856E-04
-.232666E-04	-.188349E-04	* 0.65 *	-.156414E-04	0.133090E-04
-.258242E-04	-.207217E-04	* 0.64 *	-.172369E-04	0.148010E-04
-.287050E-04	-.228187E-04	* 0.63 *	-.190151E-04	0.164862E-04
-.319554E-04	-.251507E-04	* 0.62 *	-.209990E-04	0.183939E-04
-.356313E-04	-.277451E-04	* 0.61 *	-.232151E-04	0.205553E-04
-.398005E-04	-.306357E-04	* 0.60 *	-.256942E-04	0.230117E-04
-.445414E-04	-.338687E-04	* 0.59 *	-.284719E-04	0.258059E-04
-.499328E-04	-.375075E-04	* 0.58 *	-.315859E-04	0.289864E-04
-.560307E-04	-.416199E-04	* 0.57 *	-.350710E-04	0.326098E-04
-.628568E-04	-.462232E-04	* 0.56 *	-.389540E-04	0.367544E-04
-.704586E-04	-.511847E-04	* 0.55 *	-.432624E-04	0.415476E-04
-.791341E-04	-.561624E-04	* 0.54 *	-.480721E-04	0.471916E-04
-.898210E-04	-.608192E-04	* 0.53 *	-.536022E-04	0.539365E-04
-.104350E-03	-.656191E-04	* 0.52 *	-.603051E-04	0.619195E-04
-.124777E-03	-.732205E-04	* 0.51 *	-.687784E-04	0.708344E-04

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
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(CONTINUED)

CHI 41			CHI 42		
REAL	IMAGINARY	Y	REAL	IMAGINARY	
-.150769E-03	-.895147E-04	0.50	-.792333E-04	0.795987E-04	
-.174887E-03	-.121874E-03	0.49	-.983836E-04	0.865455E-04	
-.178403E-03	-.171368E-03	0.48	-.982014E-04	0.909609E-04	
-.134586E-03	-.217933E-03	0.47	-.960113E-04	0.964716E-04	
-.294438E-04	-.204823E-03	0.46	-.782724E-04	0.115286E-03	
0.984479E-04	-.402335E-04	0.45	-.498111E-04	0.169594E-03	
0.10[illegible]541E-03	0.357646E-03	0.44	-.387813E-04	0.283910E-03	
-.292962E-03	0.953994E-03	0.43	-.105109E-03	0.462834E-03	
-.140073E-02	0.144836E-02	0.42	-.329512E-03	0.655826E-03	
-.335512E-02	0.116726E-02	0.41	-.767645E-03	0.724971E-03	
-.572871E-02	-.854923E-03	0.40	-.136670E-02	0.447796E-03	
-.716518E-02	-.545560E-02	0.39	-.187021E-02	-.406968E-03	
-.53[illegible]613E-02	-.125459E-01	0.38	-.177193E-02	-.191182E-02	
0.264[illegible]01E-02	-.201400E-01	0.37	-.400456E-03	-.375243E-02	
0.184883E-01	-.237153E-01	0.36	0.280536E-02	-.503960E-02	
0.41[illegible]235E-01	-.165904E-01	0.35	0.784780E-02	-.431440E-02	
0.640450E-01	0.812350E-02	0.34	0.136874E-01	0.109701E-03	
0.756902E-01	0.540024E-01	0.33	0.179766E-01	0.942850E-02	
0.6[illegible]2202E-01	0.117106E 00	0.32	0.172897E-01	0.234006E-01	
0.279210E-02	0.182831E 00	0.31	0.801871E-02	0.395241E-01	
-.1[illegible]3511E 00	0.225908E 00	0.30	-.121532E-01	0.527995E-01	
-.250552E 00	0.215030E 00	0.29	-.426069E-01	0.564628E-01	
-.410987E 00	0.122077E 00	0.28	-.786211E-01	0.437765E-01	
-.539979E 00	-.661632E-01	0.27	-.111355E 00	0.105245E-01	
-.584060E 00	-.337615E 00	0.26	-.129368E 00	-.425534E-01	
-.495921E 00	-.650248E 00	0.25	-.121542E 00	-.108344E 00	
-.251211E 00	-.936314E 00	0.24	-.806981E-01	-.173737E 00	
0.138087E 00	-.111[illegible]1E 01	0.23	-.675557E-02	-.222068E 00	
0.618915E 00	-.111769E 01	0.22	0.916974E-01	-.237162E 00	
0.110392E 01	-.899102E 00	0.21	0.198205E 00	-.207920E 00	
0.148913E 01	-.463081E 00	0.20	0.291639E 00	-.132044E 00	
0.167816E 01	0.137640E 00	0.19	0.351045E 00	-.177014E-01	
0.160646E 01	0.808633E 00	0.18	0.360811E 00	0.117505E 00	
0.125858E 01	0.143327E 01	0.17	0.314696E 00	0.250079E 00	
0.673798E 00	0.189839E 01	0.16	0.217597E 00	0.355737E 00	
-.614363E-01	0.211929E 01	0.15	0.845706E-01	0.414707E 00	
-.831866E 00	0.205761E 01	0.14	-.625290E-01	0.415851E 00	
-.151744E 01	0.172795E 01	0.13	-.199851E 00	0.358629E 00	
-.201677E 01	0.119244E 01	0.12	-.306508E 00	0.252609E 00	
-.226458E 01	0.545419E 00	0.11	-.368502E 00	0.114866E 00	
-.223984E 01	-.107156E 00	0.10	-.380829E 00	-.338691E-01	
-.196394E 01	-.668553E 00	0.09	-.347505E 00	-.173278E 00	
-.149094E 01	-.106780E 01	0.08	-.279792E 00	-.286804E 00	
-.893325E 00	-.126923E 01	0.07	-.193264E 00	-.363684E 00	
-.247162E 00	-.127429E 01	0.06	-.104471E 00	-.399478E 00	
0.380059E 00	-.111659E 01	0.05	-.279224E-01	-.395320E 00	
0.936806E 00	-.852328E 00	0.04	0.261328E-01	-.356340E 00	
0.138969E 01	-.548550E 00	0.03	0.528969E-01	-.289820E 00	
0.172125E 01	-.271459E 00	0.02	0.531921E-01	-.203590E 00	
0.192591E 01	-.763355E-01	0.01	0.327685E-01	-.104992E 00	
0.100000E 01	0.206423E-16	0.0	0.0	0.0	

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

CHI 43			CHI 44	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
0.378891E-04	-.260565E-04	* 0.99 *	-.854029E-06	-.832853E-05
-.329632E-05	-.650618E-05	* 0.98 *	-.134584E-05	-.536278E-07
0.140434E-05	0.243099E-06	* 0.97 *	0.166317E-06	-.203878E-06
0.345719E-05	-.757219E-07	* 0.96 *	0.299490E-06	-.563598E-06
0.380090E-05	-.536812E-06	* 0.95 *	0.256021E-06	-.660341E-06
0.396195E-05	-.652939E-06	* 0.94 *	0.251814E-06	-.696638E-06
0.419911E-05	-.694455E-06	* 0.93 *	0.266470E-06	-.738517E-06
0.448423E-05	-.744613E-06	* 0.92 *	0.284031E-06	-.788895E-06
0.479874E-05	-.806489E-06	* 0.91 *	0.302343E-06	-.845049E-06
0.514251E-05	-.876552E-06	* 0.90 *	0.321964E-06	-.906641E-06
0.551918E-05	-.954557E-06	* 0.89 *	0.343258E-06	-.974232E-06
0.593242E-05	-.104150E-05	* 0.88 *	0.366395E-06	-.104850E-05
0.638600E-05	-.113859E-05	* 0.87 *	0.391518E-06	-.113017E-05
0.688407E-05	-.124714E-05	* 0.86 *	0.418787E-06	-.122001E-05
0.743123E-05	-.136860E-05	* 0.85 *	0.448383E-06	-.131890E-05
0.803266E-05	-.150466E-05	* 0.84 *	0.480487E-06	-.142781E-05
0.869410E-05	-.165724E-05	* 0.83 *	0.515315E-06	-.154784E-05
0.942202E-05	-.182853E-05	* 0.82 *	0.553086E-06	-.168023E-05
0.1.22236E-04	-.202108E-05	* 0.81 *	0.594036E-06	-.182636E-05
0.111069E-04	-.223779E-05	* 0.80 *	0.638419E-06	-.198777E-05
0.120810E-04	-.248201E-05	* 0.79 *	0.686505E-06	-.216622E-05
0.131561E-04	-.275761E-05	* 0.78 *	0.738577E-06	-.236369E-05
0.143436E-04	-.306966E-05	* 0.77 *	0.794937E-06	-.258240E-05
0.156563E-04	-.342155E-05	* 0.76 *	0.855897E-06	-.282488E-05
0.171087E-04	-.382110E-05	* 0.75 *	0.921781E-06	-.309398E-05
0.187172E-04	-.427470E-05	* 0.74 *	0.992920E-06	-.339295E-05
0.205001E-04	-.479053E-05	* 0.73 *	0.106965E-05	-.372547E-05
0.224785E-04	-.537810E-05	* 0.72 *	0.115229E-05	-.409572E-05
0.246758E-04	-.604859E-05	* 0.71 *	0.124115E-05	-.450849E-05
0.271189E-04	-.681514E-05	* 0.70 *	0.133651E-05	-.496922E-05
0.298382E-04	-.769319E-05	* 0.69 *	0.143861E-05	-.548415E-05
0.328686E-04	-.870080E-05	* 0.68 *	0.154761E-05	-.606042E-05
0.362494E-04	-.985889E-05	* 0.67 *	0.166359E-05	-.670622E-05
0.400247E-04	-.111918E-04	* 0.66 *	0.178644E-05	-.743087E-05
0.442423E-04	-.127298E-04	* 0.65 *	0.191573E-05	-.824511E-05
0.489558E-04	-.145146E-04	* 0.64 *	0.205045E-05	-.916149E-05
0.542350E-04	-.166060E-04	* 0.63 *	0.218914E-05	-.101953E-04
0.601896E-04	-.190753E-04	* 0.62 *	0.233096E-05	-.113653E-04
0.669882E-04	-.219576E-04	* 0.61 *	0.247817E-05	-.126929E-04
0.748061E-04	-.251587E-04	* 0.60 *	0.263714E-05	-.141963E-04
0.836022E-04	-.284083E-04	* 0.59 *	0.281049E-05	-.158809E-04
0.927384E-04	-.315397E-04	* 0.58 *	0.297026E-05	-.177369E-04
0.100870E-03	-.354323E-04	* 0.57 *	0.301780E-05	-.197764E-04
0.107142E-03	-.434414E-04	* 0.56 *	0.278086E-05	-.221382E-04
0.114768E-03	-.616415E-04	* 0.55 *	0.215612E-05	-.252325E-04
0.136074E-03	-.943112E-04	* 0.54 *	0.149090E-05	-.297356E-04
0.193148E-03	-.131419E-03	* 0.53 *	0.207383E-05	-.360802E-04
0.302731E-03	-.131613E-03	* 0.52 *	0.611528E-05	-.431667E-04
0.435838E-03	-.191445E-04	* 0.51 *	0.151227E-04	-.467381E-04

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
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CHI 43			CHI 44	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.462977E-03	0.271614E-03 *	0.50 *	0.258884E-04	-.392752E-04
0.137394E-03	0.676775E-03 *	0.49 *	0.253485E-04	-.145449E-04
-.790978E-03	0.836532E-03 *	0.48 *	-.106220E-04	0.209678E-04
-.225446E-02	0.167620E-04 *	0.47 *	-.106121E-03	0.327966E-04
-.339768E-02	-.264471E-02 *	0.46 *	-.255637E-03	-.480820E-04
-.227248E-02	-.736170E-02 *	0.45 *	-.382051E-03	-.302474E-03
0.374468E-02	-.124843E-01 *	0.44 *	-.310241E-03	-.754158E-03
0.162923E-01	-.134980E-01 *	0.43 *	0.196514E-03	-.126458E-02
0.331896E-01	-.344365E-02 *	0.42 *	0.129558E-02	-.144715E-02
0.456354E-01	0.240219E-01 *	0.41 *	0.282792E-02	-.700080E-03
0.378231E-01	0.687534E-01 *	0.40 *	0.408482E-02	0.154595E-02
-.841421E-02	0.117382E 00 *	0.39 *	0.376794E-02	0.535565E-02
-.102965E 00	0.139978E 00 *	0.38 *	0.344207E-03	0.974796E-02
-.233459E 00	0.952151E-01 *	0.37 *	-.713445E-02	0.124144E-01
-.354809E 00	-.531320E-01 *	0.36 *	-.179509E-01	0.100802E-01
-.391276E 00	-.311130E 00 *	0.35 *	-.288942E-01	-.282360E-03
-.257511E 00	-.630899E 00 *	0.34 *	-.343421E-01	-.195954E-01
0.102867E 00	-.902432E 00 *	0.33 *	-.277220E-01	-.448805E-01
0.673437E 00	-.973376E 00 *	0.32 *	-.425083E-02	-.685496E-01
0.133638E 01	-.699137E 00 *	0.31 *	0.359017E-01	-.796550E-01
0.187962E 01	-.105544E-01 *	0.30 *	0.854453E-01	-.672780E-01
0.204921E 01	0.102693E 01 *	0.29 *	0.130211E 00	-.252025E-01
0.163721E 01	0.219260E 01 *	0.28 *	0.152474E 00	0.438750E-01
0.576084E 00	0.314810E 01 *	0.27 *	0.136748E 00	0.126612E 00
-.999071E 00	0.353141E 01 *	0.26 *	0.761756E-01	0.201113E 00
-.275262E 01	0.308060E 01 *	0.25 *	-.230023E-01	0.242792E 00
-.422495E 01	0.173933E 01 *	0.24 *	-.141032E 00	0.232319E 00
-.496438E 01	-.286967E 00 *	0.23 *	-.249016E 00	0.162884E 00
-.467151E 01	-.257011E 01 *	0.22 *	-.316978E 00	0.439924E-01
-.330508E 01	-.456695E 01 *	0.21 *	-.323014E 00	-.998825E-01
-.111050E 01	-.577389E 01 *	0.20 *	-.260381E 00	-.235588E 00
0.144031E 01	-.587301E 01 *	0.19 *	-.140051E 00	-.330541E 00
0.377811E 01	-.482219E 01 *	0.18 *	0.121280E-01	-.361889E 00
0.539149E 01	-.286210E 01 *	0.17 *	0.162643E 00	-.322647E 00
0.595868E 01	-.441501E 00 *	0.16 *	0.279457E 00	-.223029E 00
0.541779E 01	0.191074E 01 *	0.15 *	0.340177E 00	-.868711E-01
0.396040E 01	0.372462E 01 *	0.14 *	0.336897E 00	0.553677E-01
0.195890E 01	0.469779E 01 *	0.13 *	0.276671E 00	0.174660E 00
-.143606E 00	0.474742E 01 *	0.12 *	0.178014E 00	0.259121E 00
-.194480E 01	0.399939E 01 *	0.11 *	0.649516E-01	0.272743E 00
-.316627E 01	0.272735E 01 *	0.10 *	-.393887E-01	0.245634E 00
-.369132E 01	0.126663E 01 *	0.09 *	-.117874E 00	0.181330E 00
-.355699E 01	-.707774E-01 *	0.08 *	-.162073E 00	0.974466E-01
-.291218E 01	-.105940E 01 *	0.07 *	-.172357E 00	0.121067E-01
-.196026E 01	-.159141E 01 *	0.06 *	-.155893E 00	-.596910E-01
-.904522E 00	-.167585E 01 *	0.05 *	-.123472E 00	-.108148E 00
0.905127E-01	-.141373E 01 *	0.04 *	-.861682E-01	-.129138E 00
0.916439E 00	-.960084E 00 *	0.03 *	-.526267E-01	-.123470E 00
0.151841E 01	-.483463E 00 *	0.02 *	-.274792E-01	-.955327E-01
0.187938E 01	-.130557E 00 *	0.01 *	-.109995E-01	-.518934E-01
0.100000E 01	0.167553E-16 *	0.0 *	0.0	0.0

ADJOINT FUNCTIONS, CHI_{NM}, FOR ALPHA=1.0, REY NUM=6667

CHI_{45} REAL	CHI_{45} IMAGINARY	Y	CHI_{46} REAL	CHI_{46} IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.346710E-04	0.283786E-04	* 0.99 *	-.432198E-05	0.422110E-06
0.260898E-05	0.145321E-04	* 0.98 *	-.331386E-07	0.718415E-06
-.242320E-05	-.113939E-05	* 0.97 *	-.101680E-06	-.803668E-07
-.660349E-05	-.176670E-05	* 0.96 *	-.294122E-06	-.152409E-06
-.754286E-05	-.978024E-06	* 0.95 *	-.346504E-06	-.127811E-06
-.791515E-05	-.821366E-06	* 0.94 *	-.365758E-06	-.124334E-06
-.839500E-05	-.857739E-06	* 0.93 *	-.388062E-06	-.131189E-06
-.897581E-05	-.902374E-06	* 0.92 *	-.415073E-06	-.139508E-06
-.962126E-05	-.937465E-06	* 0.91 *	-.445245E-06	-.148054E-06
-.103287E-04	-.969908E-06	* 0.90 *	-.478576E-06	-.157130E-06
-.111053E-04	-.100201E-05	* 0.89 *	-.514781E-06	-.166919E-06
-.119589E-04	-.103338E-05	* 0.88 *	-.554843E-06	-.177487E-06
-.128980E-04	-.106321E-05	* 0.87 *	-.598959E-06	-.188881E-06
-.139314E-04	-.109057E-05	* 0.86 *	-.647567E-06	-.201152E-06
-.150694E-04	-.111442E-05	* 0.85 *	-.701157E-06	-.214353E-06
-.163232E-04	-.113346E-05	* 0.84 *	-.760279E-06	-.228542E-06
-.177057E-04	-.114609E-05	* 0.83 *	-.825550E-06	-.243774E-06
-.192310E-04	-.115038E-05	* 0.82 *	-.897667E-06	-.260104E-06
-.209151E-04	-.114395E-05	* 0.81 *	-.977409E-06	-.277586E-06
-.227763E-04	-.112394E-05	* 0.80 *	-.106566E-05	-.296268E-06
-.248346E-04	-.108683E-05	* 0.79 *	-.116342E-05	-.316192E-06
-.271130E-04	-.102837E-05	* 0.78 *	-.127181E-05	-.337390E-06
-.296374E-04	-.943399E-06	* 0.77 *	-.139210E-05	-.359881E-06
-.324368E-04	-.825638E-06	* 0.76 *	-.152573E-05	-.383664E-06
-.355445E-04	-.667478E-06	* 0.75 *	-.167435E-05	-.408716E-06
-.389977E-04	-.459686E-06	* 0.74 *	-.183982E-05	-.434975E-06
-.428388E-04	-.191634E-06	* 0.73 *	-.202425E-05	-.462339E-06
-.471161E-04	0.152224E-06	* 0.72 *	-.223006E-05	-.490642E-06
-.518844E-04	0.587006E-06	* 0.71 *	-.246001E-05	-.519641E-06
-.572070E-04	0.113387E-05	* 0.70 *	-.271729E-05	-.549009E-06
-.631567E-04	0.181651E-05	* 0.69 *	-.300551E-05	-.578342E-06
-.698156E-04	0.266030E-05	* 0.68 *	-.332875E-05	-.607144E-06
-.772684E-04	0.369399E-05	* 0.67 *	-.369143E-05	-.634637E-06
-.855948E-04	0.496601E-05	* 0.66 *	-.409843E-05	-.659179E-06
-.948845E-04	0.658479E-05	* 0.65 *	-.455626E-05	-.677527E-06
-.105325E-03	0.875080E-05	* 0.64 *	-.507569E-05	-.685618E-06
-.117370E-03	0.116542E-04	* 0.63 *	-.567388E-05	-.683968E-06
-.131799E-03	0.150576E-04	* 0.62 *	-.636798E-05	-.688226E-06
-.149100E-03	0.176532E-04	* 0.61 *	-.714926E-05	-.732642E-06
-.167646E-03	0.171693E-04	* 0.60 *	-.794294E-05	-.833486E-06
-.181434E-03	0.133177E-04	* 0.59 *	-.861125E-05	-.879124E-06
-.181494E-03	0.150113E-04	* 0.58 *	-.912060E-05	-.491137E-06
-.168138E-03	0.476688E-04	* 0.57 *	-.995752E-05	0.912836E-06
-.176873E-03	0.145407E-03	* 0.56 *	-.125698E-04	0.345419E-05
-.300695E-03	0.305820E-03	* 0.55 *	-.190135E-04	0.535170E-05
-.657622E-03	0.403876E-03	* 0.54 *	-.295963E-04	0.159109E-05
-.124117E-02	0.126241E-03	* 0.53 *	-.382509E-04	-.146784E-04
-.165298E-02	-.921576E-03	* 0.52 *	-.286348E-04	-.446452E-04
-.910161E-03	-.276261E-02	* 0.51 *	0.214595E-04	-.700464E-04

ADJOINT FUNCTIONS, CHI$_{NM}$, FOR ALPHA=1.0, REY NUM=6667

(CONTINUED)

CHI 45			CHI 46		
REAL	IMAGINARY	Y	REAL	IMAGINARY	
0.225432E-02	-.427942E-02	* 0.50 *	0.118573E-03	-.419452E-04	
0.815766E-02	-.264852E-02	* 0.49 *	0.215385E-03	0.107792E-03	
0.141023E-01	0.595264E-02	* 0.48 *	0.179144E-03	0.410649E-03	
0.127591E-01	0.233094E-01	* 0.47 *	-.184131E-03	0.763338E-03	
-.649450E-02	0.440338E-01	* 0.46 *	-.999237E-03	0.842326E-03	
-.508633E-01	0.511746E-01	* 0.45 *	-.208923E-02	0.141661E-03	
-.112400E 00	0.179953E-01	* 0.44 *	-.275746E-02	-.175480E-02	
-.156954E 00	-.788409E-01	* 0.43 *	-.181420E-02	-.466851E-02	
-.124637E 00	-.234842E 00	* 0.42 *	0.192128E-02	-.731261E-02	
0.475118E-01	-.392340E 00	* 0.41 *	0.862395E-02	-.721077E-02	
0.379570E 00	-.434188E 00	* 0.40 *	0.163589E-01	-.149982E-02	
0.796263E 00	-.216883E 00	* 0.39 *	0.206511E-01	0.112945E-01	
0.110187E 01	0.351963E 00	* 0.38 *	0.155532E-01	0.291092E-01	
0.101875E 01	0.121611E 01	* 0.37 *	-.352396E-02	0.450967E-01	
0.303029E 00	0.210598E 01	* 0.36 *	-.360453E-01	0.486863E-01	
-.109317E 01	0.256658E 01	* 0.35 *	-.735606E-01	0.295661E-01	
-.288862E 01	0.210779E 01	* 0.34 *	-.100116E 00	-.163925E-01	
-.446019E 01	0.444791E 00	* 0.33 *	-.970884E-01	-.818973E-01	
-.500622E 01	-.226983E 01	* 0.32 *	-.515016E-01	-.146948E 00	
-.386174E 01	-.535062E 01	* 0.31 *	0.354650E-01	-.183643E 00	
-.849580E 00	-.771315E 01	* 0.30 *	0.144196E 00	-.166491E 00	
0.349813E 01	-.823368E 01	* 0.29 *	0.239940E 00	-.845387E-01	
0.798585E 01	-.621438E 01	* 0.28 *	0.283893E 00	0.502032E-01	
0.110999E 02	-.175819E 01	* 0.27 *	0.248402E 00	0.202769E 00	
0.115471E 02	0.413062E 01	* 0.26 *	0.130013E 00	0.325103E 00	
0.877626E 01	0.980049E 01	* 0.25 *	-.457105E-01	0.372731E 00	
0.326048E 01	0.134890E 02	* 0.24 *	-.230534E 00	0.321774E 00	
-.359278E 01	0.139415E 02	* 0.23 *	-.369225E 00	0.179227E 00	
-.988419E 01	0.108670E 02	* 0.22 *	-.418629E 00	-.179767E-01	
-.138505E 02	0.505389E 01	* 0.21 *	-.362666E 00	-.214953E 00	
-.144385E 02	-.189777E 01	* 0.20 *	-.217532E 00	-.357211E 00	
-.116157E 02	-.811246E 01	* 0.19 *	-.254528E-01	-.408279E 00	
-.632054E 01	-.120372E 02	* 0.18 *	0.160089E 00	-.360216E 00	
-.996677E-01	-.128857E 02	* 0.17 *	0.291726E 00	-.233816E 00	
0.541210E 01	-.107921E 02	* 0.16 *	0.341874E 00	-.694304E-01	
0.897541E 01	-.665773E 01	* 0.15 *	0.308491E 00	0.873204E-01	
0.100401E 02	-.178501E 01	* 0.14 *	0.212091E 00	0.199499E 00	
0.878531E 01	0.255081E 01	* 0.13 *	0.863737E-01	0.247947E 00	
0.593815E 01	0.544614E 01	* 0.12 *	-.334419E-01	0.233459E 00	
0.247070E 01	0.653976E 01	* 0.11 *	-.120476E 00	0.172666E 00	
-.707643E 00	0.599445E 01	* 0.10 *	-.161610E 00	0.901735E-01	
-.296930E 01	0.433702E 01	* 0.09 *	-.157829E 00	0.101686E-01	
-.405637E 01	0.223646E 01	* 0.08 *	-.120614E 00	-.498969E-01	
-.404561E 01	0.298488E 00	* 0.07 *	-.664508E-01	-.821981E-01	
-.323378E 01	-.107112E 01	* 0.06 *	-.115167E-01	-.880384E-01	
-.199913E 01	-.171654E 01	* 0.05 *	0.319963E-01	-.749775E-01	
-.685736E 00	-.170656E 01	* 0.04 *	0.574371E-01	-.530035E-01	
0.462615E 00	-.126201E 01	* 0.03 *	0.634158E-01	-.310379E-01	
0.131530E 01	-.666539E 00	* 0.02 *	0.524523E-01	-.146121E-01	
0.182817E 01	-.184637E 00	* 0.01 *	0.293787E-01	-.503450E-02	
0.100000E 01	0.829593E-16	* 0.0 *	0.0	0.0	

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
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CHI 47			CHI 48	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.0	0.0	* 1.00 *	0.0	0.0
-.376491E 06	0.383589E 06	* 0.99 *	-.112246E 00	0.274277E 00
-.492242E 06	-.546058E 05	* 0.98 *	-.262607E 00	0.746285E-01
-.452526E 06	-.571557E 06	* 0.97 *	-.349941E 00	-.197545E 00
-.267066E 05	-.100755E 07	* 0.96 *	-.223302E 00	-.508700E 00
0.710354E 06	-.103969E 07	* 0.95 *	0.146232E 00	-.678414E 00
0.139550E 07	-.477681E 06	* 0.94 *	0.612807E 00	-.534026E 00
0.156937E 07	0.524620E 06	* 0.93 *	0.909924E 00	-.586050E-01
0.999820E 06	0.147967E 07	* 0.92 *	0.817751E 00	0.547199E 00
-.175468E 06	0.184729E 07	* 0.91 *	0.330070E 00	0.964479E 00
-.119064E 07	0.139875E 07	* 0.90 *	-.316883E 00	0.961019E 00
-.170400E 07	0.380762E 06	* 0.89 *	-.790264E 00	0.548174E 00
-.144840E 07	-.653684E 06	* 0.88 *	-.874630E 00	-.327310E-01
-.669913E 06	-.121178E 07	* 0.87 *	-.593277E 00	-.479088E 00
0.155023E 06	-.114399E 07	* 0.86 *	-.158326E 00	-.615700E 00
0.641852E 06	-.658973E 06	* 0.85 *	0.190668E 00	-.469265E 00
0.689970E 06	-.113298E 06	* 0.84 *	0.328399E 00	-.200875E 00
0.450202E 06	0.230129E 06	* 0.83 *	0.277304E 00	0.240277E-01
0.154143E 06	0.310465E 06	* 0.82 *	0.142944E 00	0.126377E 00
-.410023E 05	0.220577E 06	* 0.81 *	0.247834E-01	0.120970E 00
-.102150E 06	0.906194E 05	* 0.80 *	-.333246E-01	0.673558E-01
-.780735E 05	0.236866E 04	* 0.79 *	-.393207E-01	0.173624E-01
-.318355E 05	-.282781E 05	* 0.78 *	-.220836E-01	-.783807E-02
-.115911E 03	-.232960E 05	* 0.77 *	-.487597E-02	-.118603E-01
0.106067E 05	-.894762E 04	* 0.76 *	0.356060E-02	-.676016E-02
0.896835E 04	0.751514E 03	* 0.75 *	0.473073E-02	-.147414E-02
0.439063E 04	0.372768E 04	* 0.74 *	0.301126E-02	0.990725E-03
0.138773E 04	0.304433E 04	* 0.73 *	0.133837E-02	0.126339E-02
0.402105E 03	0.165807E 04	* 0.72 *	0.549089E-03	0.760465E-03
0.417520E 03	0.800015E 03	* 0.71 *	0.379557E-03	0.319992E-03
0.600026E 03	0.498850E 03	* 0.70 *	0.410330E-03	0.128967E-03
0.655884E 03	0.445274E 03	* 0.69 *	0.427672E-03	0.903317E-04
0.601708E 03	0.428926E 03	* 0.68 *	0.396602E-03	0.933697E-04
0.516066E 03	0.389442E 03	* 0.67 *	0.344720E-03	0.910740E-04
0.441316E 03	0.335950E 03	* 0.66 *	0.295514E-03	0.793611E-04
0.384229E 03	0.285191E 03	* 0.65 *	0.255888E-03	0.653750E-04
0.339112E 03	0.243492E 03	* 0.64 *	0.224244E-03	0.535227E-04
0.300861E 03	0.210067E 03	* 0.63 *	0.197816E-03	0.444584E-04
0.267286E 03	0.182562E 03	* 0.62 *	0.174998E-03	0.374361E-04
0.237704E 03	0.159320E 03	* 0.61 *	0.155100E-03	0.317536E-04
0.211741E 03	0.139445E 03	* 0.60 *	0.137746E-03	0.270331E-04
0.188980E 03	0.122393E 03	* 0.59 *	0.122610E-03	0.230836E-04
0.168986E 03	0.107732E 03	* 0.58 *	0.109380E-03	0.197761E-04
0.151370E 03	0.950862E 02	* 0.57 *	0.977811E-04	0.170006E-04
0.135807E 03	0.841389E 02	* 0.56 *	0.875807E-04	0.146629E-04
0.122024E 03	0.746263E 02	* 0.55 *	0.785856E-04	0.126855E-04
0.109792E 03	0.663322E 02	* 0.54 *	0.706335E-04	0.110063E-04
0.989122E 02	0.590779E 02	* 0.53 *	0.635869E-04	0.957509E-05
0.892167E 02	0.527144E 02	* 0.52 *	0.573287E-04	0.835119E-05
0.805601E 02	0.471168E 02	* 0.51 *	0.517589E-04	0.730126E-05

ADJOINT FUNCTIONS, CHI , FOR ALPHA=1.0, REY NUM=6667
NM

(CONTINUED)

CHI 47			CHI 48	
REAL	IMAGINARY	Y	REAL	IMAGINARY
0.728168E 02	0.421800E 02 *	0.50 *	0.467918E-04	0.639786E-05
0.658785E 02	0.378152E 02 *	0.49 *	0.423537E-04	0.561831E-05
0.596513E 02	0.339472E 02 *	0.48 *	0.383810E-04	0.494382E-05
0.540535E 02	0.305118E 02 *	0.47 *	0.348189E-04	0.435870E-05
0.490139E 02	0.274543E 02 *	0.46 *	0.316197E-04	0.384988E-05
0.444705E 02	0.247277E 02 *	0.45 *	0.287420E-04	0.340638E-05
0.403689E 02	0.222917E 02 *	0.44 *	0.261496E-04	0.301893E-05
0.366613E 02	0.201114E 02 *	0.43 *	0.238110E-04	0.267975E-05
0.333058E 02	0.181567E 02 *	0.42 *	0.216986E-04	0.238221E-05
0.302655E 02	0.164015E 02 *	0.41 *	0.197880E-04	0.212070E-05
0.275076E 02	0.148230E 02 *	0.40 *	0.180578E-04	0.189043E-05
0.250035E 02	0.134015E 02 *	0.39 *	0.164893E-04	0.168730E-05
0.227274E 02	0.121197E 02 *	0.38 *	0.150657E-04	0.150781E-05
0.206567E 02	0.109622E 02 *	0.37 *	0.137723E-04	0.134895E-05
0.187712E 02	0.991592E 01 *	0.36 *	0.125961E-04	0.120813E-05
0.170530E 02	0.896898E 01 *	0.35 *	0.115253E-04	0.108312E-05
0.154859E 02	0.811109E 01 *	0.34 *	0.105496E-04	0.971970E-06
0.140558E 02	0.733310E 01 *	0.33 *	0.965984E-05	0.873012E-06
0.127498E 02	0.662692E 01 *	0.32 *	0.884766E-05	0.784789E-06
0.115563E 02	0.598540E 01 *	0.31 *	0.810571E-05	0.706033E-06
0.104652E 02	0.540215E 01 *	0.30 *	0.742736E-05	0.635637E-06
0.946723E 01	0.487152E 01 *	0.29 *	0.680666E-05	0.572636E-06
0.855400E 01	0.438846E 01 *	0.28 *	0.623825E-05	0.516184E-06
0.771808E 01	0.394846E 01 *	0.27 *	0.571732E-05	0.465539E-06
0.695274E 01	0.354752E 01 *	0.26 *	0.523952E-05	0.420049E-06
0.625192E 01	0.318202E 01 *	0.25 *	0.480092E-05	0.379141E-06
0.561012E 01	0.284876E 01 *	0.24 *	0.439797E-05	0.342308E-06
0.502243E 01	0.254485E 01 *	0.23 *	0.402745E-05	0.309105E-06
0.448436E 01	0.226770E 01 *	0.22 *	0.368643E-05	0.279136E-06
0.399189E 01	0.201499E 01 *	0.21 *	0.337225E-05	0.252050E-06
0.354137E 01	0.178464E 01 *	0.20 *	0.308250E-05	0.227537E-06
0.312950E 01	0.157476E 01 *	0.19 *	0.281497E-05	0.205320E-06
0.275331E 01	0.138369E 01 *	0.18 *	0.256764E-05	0.185152E-06
0.241010E 01	0.120990E 01 *	0.17 *	0.233865E-05	0.166813E-06
0.209744E 01	0.105204E 01 *	0.16 *	0.212632E-05	0.150106E-06
0.181314E 01	0.908869E 00 *	0.15 *	0.192908E-05	0.134854E-06
0.155522E 01	0.779353E 00 *	0.14 *	0.174549E-05	0.120898E-06
0.132190E 01	0.662453E 00 *	0.13 *	0.157423E-05	0.108094E-06
0.111159E 01	0.557313E 00 *	0.12 *	0.141406E-05	0.963136E-07
0.922859E 00	0.463153E 00 *	0.11 *	0.126383E-05	0.854380E-07
0.754435E 00	0.379279E 00 *	0.10 *	0.112247E-05	0.753604E-07
0.605181E 00	0.305080E 00 *	0.09 *	0.988985E-06	0.659830E-07
0.474094E 00	0.240045E 00 *	0.08 *	0.862425E-06	0.572167E-07
0.360382E 00	0.183784E 00 *	0.07 *	0.741906E-06	0.489713E-07
0.263707E 00	0.135757E 00 *	0.06 *	0.626570E-06	0.411351E-07
0.183650E 00	0.939371E-01 *	0.05 *	0.515469E-06	0.336163E-07
0.114131E 00	0.544000E-01 *	0.04 *	0.407523E-06	0.268027E-07
0.324854E-01	0.302577E-01 *	0.03 *	0.303069E-06	0.224749E-07
-0.524170E-01	0.122283E 00 *	0.02 *	0.209730E-06	0.198668E-07
0.230346E 00	0.469347E 00 *	0.01 *	0.138492E-06	-0.116871E-07
0.100000E 01	0.160869E-16 *	0.0 *	0.0	0.0

APPENDIX

Listing of the program in Fortran IV

```
      COMMON / FIELDS / W,VAL,Y,U
      COMMON / SPACES / B,BI,TEMP,VECT
      COMMON / ARRAYS / IORD(101),INUM(101)
      COMMON / PARAMS / M,N,NM1,NM2,NM3,NM4,NM5,NH,NHM1,NHM2,NHM3,NHM4,
     1                  NHM5,KOUNT,MODE,NCAL
      COMMON / FACTOR / XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
      COMMON / EXTRA / NUMVEC
      DOUBLE PRECISION  W(2,100,100),VAL(2,100),Y(201),U(201)
      DOUBLE PRECISION  B(100,100),BI(100,100),TEMP(2,100),VECT(2,100)
      DOUBLE PRECISION  XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
C     THIS PROGRAM COMPUTES EIGENVALUES AND VECTORS FOR THE
C     ORR-SOMMERFELD EQUATIONS
C     FOR DETAILS THE USER IS REFERED TO THE NAVAL POSTGRADUATE SCHOOL
C     REPORTS NO. 57GN71091A AND 57GN71092A
C
C     THIS PROGRAM COMPUTES EVEN SLOUTIONS TO THE EQUATIONS.  TO COMPUTE
C     ODD SOLUTIONS THE FOLLOWING MINOR ALTERATIONS CAN BE MADE
C     CHANGE THE B MATRIX DIMENSIONS TO B(99,99) IN EACH SUBROUTINE
C     IN SUBROUTINES SETUP AND SETMAT FOLLOW INSTRUCTIONS ON THE
C     COMMENT CARDS
C
C
C     PLEASE NOTE:  THE FORMULATION USED HERE FOR COMPUTING W AND B
C     USES THE FINITE DIFFERENCE REPRESENTATION USED IN REPORT
C     57GN71091A
C     THAT IS THE DUFORT-FRANKEL REPRESENTATION OF THE DIFFUSION
C     TERMS IS USED
C     THE DATA CARDS ARE AS FOLLOWS
C     REYNLD=REYNOLDS NUMBER
C     ALPHA=WAVE NUMBER
C     N=NUMBER OF POINTS IN Y DIRECTION
C     M=NUMBER OF POINTS IN X DIRECTION
C     NUMVEC= NUMBER OF VECTORS TO BE PRINTED IN THE OUTPUT
      XLAMDA=.2D0
      FRACEL=.4D0
      NUMVEC=20
      NUMVEC=4
      N=201
      M=64
      REYNLD=6666.67D0
      H=3.14159265358980
      ALPHA=3.D0
```

```
      CALL SETUP
      CALL EXACT
      STOP
      END


      SUBROUTINE SETUP
      COMMON / FIELDS / W,VAL,Y,U
      COMMON / SPACES / B,BI,TEMP,VECT
      COMMON / ARRAYS / IORD(101),INUM(101)
      COMMON / PARAMS / M,N,NM1,NM2,NM3,NM4,NM5,NH,NHM1,NHM2,NHM3,NHM4,
     1                  NHM5,KOUNT,MODE,NCAL
      COMMON / FACTOR / XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
      COMMON / EXTRA / NUMVEC
      DOUBLE PRECISION  W(2,100,100),VAL(2,100),Y(201),U(201)
      DOUBLE PRECISION  B(100,100),BI(100,100),TEMP(2,100),VECT(2,100)
      DOUBLE PRECISION  XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
C
C     MISCELANEOUS PARAMETERS
C
      WRITE(6,99)
C     THIS SUBROUTINE COMPUTES VARIOUS FIXED CONSTANTS
C     MANY OF THEM ARE SIGNIFICANT ONLY FOR DISCRETE SOLUTIONS
      NM1=N-1
      NM2=N-2
      NM3=N-3
      NM4=N-4
      NM5=N-5
      NH=(N+1)/2
C     NH=100  FOR ODD SOLUTIONS
      NHM1=NH-1
      NHM2=NH-2
      NHM3=NH-3
      NHM4=NH-4
      NHM5=NH-5
      XN=DFLOAT(N)
      XNM1=DFLOAT(NM1)
      XNH=DFLOAT(NH)
      XNHM1=DFLOAT(NHM1)
      DX=2.D0*H/DFLOAT(M)
      DY=2.D0/XNM1
      DXSQR=DX*DX
```

```
      DYSQR=DY*DY
      RATIO=DYSQR/DXSQR
      RATIOP=RATIO+1.D0
      DTT=FRACEL*DSQRT(DX*DY)/1.5D0
      DT=XLAMDA*DX*DY*REYNLD/4.D0
      DT=DMIN1(DT,DTT)
      ITEL=1
      IF(DT .EQ. DTT) ITEL=-1
C
CC    VORTICITY BOUNDARY CONDITIONS
C
      P1=8.D0
      P2=-3.D0
      P3=8.D0/9.D0
      P4=-.125D0
      P1=4.D0
      P2=-.5D0
      P3=0.D0
      P4=0.D0
C
CC    TITLE
C
      WRITE(6,13) N,M,ITEL
      WRITE(6,14) DX,DXSQR,RATIO
      WRITE(6,15) DY,DYSQR,RATIOP
      WRITE(6,16) DT,FRACEL,XLAMDA
      WRITE(6,17) H,ALPHA,REYNLD
   13 FORMAT(10X,'N= ',I3,8X,'M=      ',I3,8X,'ITEL=  ',I3)
   14 FORMAT(10X,'DX=',F8.6,3X,'DXSQR= ',F8.6,3X,'RATIO= ',F8.5)
   15 FORMAT(10X,'DY=',F8.6,3X,'DYSQR= ',F8.6,3X,'RATIOP=',F8.5)
   16 FORMAT(10X,'DT=',F8.6,3X,'FRACEL=',F8.6,3X,'XLAMDA=',F8.6)
   17 FORMAT(10X,'H= ',F8.6,3X,'ALPHA= ',F8.6,3X,'REYNLD=',F10.4)
      DO 10 J=1,N
      Y(J)=DY*DFLOAT(J-1)-1.D0
      U(J)=-1.5D0*(Y(J)**2-1.D0)
   10 CONTINUE
      WRITE(6,99)
   99 FORMAT(1H0,10X,'* * * * * * * * * * * * * * * * * * * * * * * * *
     1* * * * * * * * * * * * * * * * * * * * * * * * '//)
      RETURN
      END


      SUBROUTINE EXACT
      COMMON / FIELDS / W,VAL,Y,U
      COMMON / SPACES / B,BI,TEMP,VECT
      COMMON / ARRAYS / IORD(101),INUM(101)
      COMMON / PARAMS / M,N,NM1,NM2,NM3,NM4,NM5,NH,NHM1,NHM2,NHM3,NHM4,
```

```
     1                  NHM5,KOUNT,MODE,NCAL
      COMMON / FACTOR / XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
      DOUBLE PRECISION  W(2,100,100),VAL(2,100),Y(201),U(201)
      DOUBLE PRECISION  B(100,100),BI(100,100),TEMP(2,100),VECT(2,100)
      COMMON / EXTRA / NUMVEC
      DOUBLE PRECISION  XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
C
CC    EXACT IS CALLED FROM MAIN IF THE INFLUENCE OF DX AND DT IS
C     NOT BEING CONSIDERED .  THIS IS THE CASE DISCUSSED IN 57GN71C92A
C     THE DUFORT-FRANKEL REPRESENTATION IS USED  HERE
      CMEGA=-2.D0-(ALPHA*DY)**2
      ZETA=ALPHA
      OMEGT=OMEGA+2.D0*RATIOP
      CALL SETMAT
      DETRM=-2.D0*RATIOP/(REYNLD*DYSQR)
      DO 10 I=1,NCAL
      VAL(1,I)=VAL(1,I)+DETRM
      TEMP(1,I)=TEMP(1,I)+DETRM
      VAL(1,I)=VAL(1,I)/ALPHA
      VAL(2,I)=VAL(2,I)/ALPHA
   10 CONTINUE
      GAMA=TEMP(1,1)
      BETA=TEMP(2,1)
      C1=-TEMP(1,1)/ALPHA
      C2=-TEMP(2,1)/ALPHA
      D1=1.D0
      D2=0.D0
      WRITE(6,1)
    1 FORMAT(10X,'*** CONTINUOUS CASE ***     DATA FOR LEAST STABLE MODE
     1'//)
      WRITE(6,2) CMEGA,OMEGT,ZETA
      WRITE(6,3) D1,D2
      WRITE(6,4) C1,C2
      WRITE(6,5) GAMA,BETA,ALPHA
    2 FORMAT(10X,'OMEGA= ',F13.8,3X,'OMEGT= ',F13.8,3X,'ZETA= ',F13.8)
    3 FORMAT(10X,'D1    = ',F13.8,3X,'D2    = ',F13.8)
    4 FORMAT(10X,'C1    = ',F13.8,3X,'C2    = ',F13.8)
    5 FORMAT(10X,'GAMA  = ',F13.8,3X,'BETA  = ',F13.8,3X,'ALPHA=',F13.8//)
      IF(NUMVEC .GE. 0) CALL OUTPUT(NUMVEC)
      RETURN
      END
```

```
      SUBROUTINE DISCRT
      COMMON / FIELDS / W,VAL,Y,U
      COMMON / SPACES / B,BI,TEMP,VECT
      COMMON / ARRAYS / IORD(101),INUM(101)
      COMMON / PARAMS / M,N,NM1,NM2,NM3,NM4,NM5,NH,NHM1,NHM2,NHM3,NHM4,
     1                  NHM5,KOUNT,MODE,NCAL
      COMMON / FACTOR / XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
      COMMON / EXTRA / NUMVEC
      DOUBLE PRECISION  W(2,100,100),VAL(2,100),Y(201),U(201)
      DOUBLE PRECISION  B(100,100),BI(100,100),TEMP(2,100),VECT(2,100)
      DOUBLE PRECISION  XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
      DOUBLE PRECISION XX,YY
C     SUBROUTINE DISCRT IS CALLED BY MAIN (RATHER THAN EXACT) IF
C     THE INFLUENCE OF THE FINITE DIFF PARAMETERS DX AND DT IS
C     BEING CONSIDERED
      OMEGA=-2.D0-4.D0*RATIO*DSIN(ALPHA*DX/2.D0)**2
      OMEGT=OMEGA+2.D0*RATIOP
      ZETA=DSIN(ALPHA*DX)/DX
      CALL SETMAT
      FAC=2.D0*RATIOP/(REYNLD*DYSQR)
      IF(NCAL .EQ. 0) GO TO 100
    8 DO 20 J=1,NCAL
      C1=TEMP(1,J)
      C2=TEMP(2,J)
      PUNT=C1-FAC
      CRIT=C2
      DO 10 I=1,100
      XX=CRIT*DT
      YY=PUNT*DT
      D1=YY/(DSINH(YY)*DCOS(XX))*(C1-FAC*DCOSH(YY)*DCOS(XX))
      D2=XX/(DSIN(XX)*DCOSH(YY))*(C2-FAC*DSINH(YY)*DSIN(XX))
      PUNT=1.D0-DABS(PUNT/D1)
      CRIT=1.D0-DABS(CRIT/D2)
      IF((PUNT .LT. .00001) .AND. (CRIT .LT. .00001)) GO TO 15
    9 PUNT=D1
      CRIT=D2
   10 CONTINUE
      I=100
   15 TEMP(1,J)=D1
      TEMP(2,J)=D2
      IF(I .GT. 99) WRITE(6,16) J,I
   16 FORMAT(10X,'J=',I3,3X,I3,'ITERATIONS')
```

```
   20 CONTINUE
      GAMA=TEMP(1,1)
      BETA=TEMP(2,1)
      C1=-GAMA/ALPHA
      C2=-BETA/ALPHA
      D1=DCOSH(GAMA*DT)*DCOS(BETA*DT)
      D2=DSINH(GAMA*DT)*DSIN(BETA*DT)
      WRITE(6,1)
    1 FORMAT(10X,'*** DISCRETE CASE ***     DATA FOR LEAST STABLE MODE')
      WRITE(6,2) OMEGA,OMEGT,ZETA
      WRITE(6,3) D1,D2
      WRITE(6,4) C1,C2
      WRITE(6,5) GAMA,BETA,ALPHA
    2 FORMAT(10X,'OMEGA= ',F13.8,3X,'OMEGT= ',F13.8,3X,'ZETA= ',F13.8)
    3 FORMAT(10X,'D1    = ',F13.8,3X,'D2    = ',F13.8)
    4 FORMAT(10X,'C1    = ',F13.8,3X,'C2    = ',F13.8)
    5 FORMAT(10X,'GAMA = ',F13.8,3X,'BETA = ',F13.8,3X,'ALPHA=',F13.8//)
      IF(NUMVEC .GE. 0) CALL OUTPUT(NUMVEC)
  100 RETURN
      END


      SUBROUTINE SETMAT
      COMMON / FIELDS / W,VAL,Y,U
      COMMON / SPACES / B,BI,TEMP,VECT
      COMMON / ARRAYS / IORD(101),INUM(101)
      COMMON / PARAMS / M,N,NM1,NM2,NM3,NM4,NM5,NH,NHM1,NHM2,NHM3,NHM4,
     1                  NHM5,KOUNT,MODE,NCAL
      COMMON / FACTOR / XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
      COMMON / EXTRA / NUMVEC
      DOUBLE PRECISION  W(2,100,100),VAL(2,100),Y(201),U(201)
      DOUBLE PRECISION  B(100,100),BI(100,100),TEMP(2,100),VECT(2,100)
      DOUBLE PRECISION  XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
C
C     SETMAT SETS UP THE MATRICES B AND W .  ALSO B IS INVERTED BY MINV
C     AND THE EIGENVALUES-VECTORS OF W ARE FOUND BY DALMAT
C     ZERO ARRAYS
C
      DO 10 I=1,NHM1
      VAL(1,I)=0.D0
      VAL(2,I)=0.D0
      TEMP(1,I)=0.D0
```

```
      TEMP(2,I)=0.D0
      DO 10 J=1,NHM1
      W(1,I,J)=0.D0
      W(2,I,J)=0.D0
      B(I,J)=0.D0
   10 CONTINUE
C
CC    SET UP AND INVERT MATRIX B
C
      DO 20 I=1,NHM2
      B(I,I)=OMEGA
      B(I,I+1)=1.D0
      B(I+1,I)=1.D0
   20 CONTINUE
      B(NHM1,NHM1)=OMEGA
      B(NHM1,NHM2)=2.D0
C     FOR ODD SOLUTIONS THE ABOVE CARD SHOULD BE DELETED
      WRITE(6,22)
   22 FORMAT(1H0,10X,'ENTER MINV')
      CALL MINV(B,NHM1,DETRM,IORD,INUM)
      WRITE(6,23)
   23 FORMAT(10X,'EXIT MINV'//)
      IF(DETRM .LT. .1D-06) WRITE(6,21) DETRM
   21 FORMAT(1H0,10X,'B ALMOST SINGULAR. DETRM= ',E10.4//)
C
CC    SET UP MATRIX W
C
      DETRM=-3.D0*ZETA*DYSQR
      DO 30 I=1,NHM2
      W(2,I,I)=ZETA*U(I+1)*OMEGA-DETRM
      W(2,I+1,I)=ZETA*U(I+2)
      W(2,I,I+1)=ZETA*U(I+1)
   30 CONTINUE
      W(2,NHM1,NHM2)=2.D0*ZETA*U(NH)
      W(2,NHM1,NHM1)=ZETA*U(NH)*OMEGA
C     FOR ODD SOLUTIONS REMOVE THE C FROM THE FOLLOWING CARD
C     W(2,NHM1,NHM2)=U(NH)*ZETA
      DO 40 I=1,NHM1
      DO 40 J=1,NHM1
      DO 40 K=1,NHM1
      W(1,I,J)=W(1,I,J)+B(I,K)*W(2,K,J)
   40 CONTINUE
      DO 50 I=1,NHM1
      DO 50 J=1,NHM1
      W(2,I,J)=W(1,I,J)
      BI(I,J)=W(2,I,J)
      W(1,I,J)=0.D0
   50 CONTINUE
```

```
      DETRM=1.DO/(REYNLD*DYSQR)
      DO 60 I=1,NHM2
      W(1,I,I)=DETRM*OMEGT
      W(1,I+1,I)=DETRM
      W(1,I,I+1)=DETRM
   60 CONTINUE
      W(1,NHM1,NHM1)=DETRM*OMEGT
      W(1,NHM1,NHM2)=2.DO*DETRM
C     FOR ODD SOLUTIONS REVOVE THE C FROM THE FOLLOWING CARD
C     W(1,NHM1,NHM2)=DETRM
      DO 70 I=1,NHM1
      W(1,I,1)=W(1,I,1)+B(I,1)*P1*DETRM
      W(1,I,2)=W(1,I,2)+B(I,1)*P2*DETRM
      W(1,I,3)=W(1,I,3)+B(I,1)*P3*DETRM
      W(1,I,4)=W(1,I,4)+B(I,1)*P4*DETRM
   70 CONTINUE
C
C
C     NORMALIZE MATRIX W
C
      FAC=DSQRT(W(1,NHM1,NHM1)**2+W(2,NHM1,NHM1)**2)
      FAC=1.DO/FAC
      DO 75 I=1,NHM1
      DO 75 J=1,NHM1
      W(1,I,J)=W(1,I,J)*FAC
      W(2,I,J)=W(2,I,J)*FAC
   75 CONTINUE
C
C     OBTAIN THE EIGENVALUES AND EIGENVECTORS OF W
C
      WRITE(6,72)
   72 FORMAT(10X,'ENTER DALMAT')
      CALL DALMAT(W,VAL,NHM1,NHM1,NCAL)
C     FOR ODD SOLUTIONS THE CALL CARD SHOULD BE AS FOLLOWS
C     CALL DALMAT(W,VAL,NHM1,100,NCAL)
      WRITE(6,71) NCAL
   71 FORMAT(1H0,10X,'***  ',I3,' EIGENVALUES AND EIGENVECTORS CALCULATE
     1D'//)
C
C     REMOVE THE NORMALIZING FACTOR FROM THE COMPUTED EIGENVALUES
C
      DO 80 I=1,NHM1
      VAL(1,I)=VAL(1,I)/FAC
      VAL(2,I)=VAL(2,I)/FAC
      VAL(2,I)=-VAL(2,I)
   80 CONTINUE
C
C      FIND THE STABILITY ORDER OF THE EIGENVALUES --- MAX REAL PART
```

```
C       ARRAY IORD(I)=STORAGE LOCATION OF EIGENVALUE OR EIGENVECTOR
C                     WITH STABILITY NUMBER=I
C      ARRAY INUM(I)=STABILITY NUMBER OF EIGENVALUE OR EIGENVECTOR
C                     WITH STORAGE NUMBER=I
C
       DO 100 IC=1,NCAL
       PUNT=-.1D35
       DO 90 I=1,NCAL
       IF(VAL(1,I) .GT. PUNT) II=I
       PUNT=DMAX1(PUNT,VAL(1,I))
    90 CONTINUE
       IORD(IC)=II
       INUM(II)=IC
C
C      PUT EIGENVALUES IN ARRAY TEMP IN STABILITY ORDER
C
       TEMP(1,IC)=VAL(1,II)
       TEMP(2,IC)=VAL(2,II)
       VAL(1,II)=-.1D35
   100 CONTINUE
       DO 110 I=1,NCAL
       II=INUM(I)
       VAL(1,I)=TEMP(1,II)
   110 CONTINUE
C
C      NORMALIZE THE EIGENVECTORS
C      FOR ODD SOLUTIONS THIS NORMALIZING ROUTINE SHOULD BE DELETED
C      I.E.  GO TO 130
C
       IF(NUMVEC .LE. 0) GO TO 130
   115 DO 126 K=1,NHM1
       JJ=IORD(K)
       PUNT=-W(2,NHM1,JJ)/W(1,NHM1,JJ)
       DO 120 I=1,NHM1
       VECT(1,I)=W(1,I,JJ)-PUNT*W(2,I,JJ)
       VECT(2,I)=W(2,I,JJ)+PUNT*W(1,I,JJ)
   120 CONTINUE
       PUNT=0.D0
       PUNT=VECT(1,NHM1)
       PUNT=1.D0/PUNT
       DO 126 I=1,NHM1
       W(1,I,JJ)=PUNT*VECT(1,I)
       W(2,I,JJ)=PUNT*VECT(2,I)
   126 CONTINUE
   130 RETURN
       END
```

```
      SUBROUTINE PRINT(INDEX)
      COMMON / FIELDS / W,VAL,Y,U
      COMMON / SPACES / B,BI,TEMP,VECT
      COMMON / ARRAYS / IORD(101),INUM(101)
      COMMON / PARAMS / M,N,NM1,NM2,NM3,NM4,NM5,NH,NHM1,NHM2,NHM3,NHM4,
     1                  NHM5,KOUNT,MODE,NCAL
      COMMON / FACTOR / XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
      COMMON / EXTRA / NUMVEC
      DOUBLE PRECISION  W(2,100,100),VAL(2,100),Y(201),U(201)
      DOUBLE PRECISION  B(100,100),BI(100,100),TEMP(2,100),VECT(2,100)
      DOUBLE PRECISION  XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
C     THIS PRINTS OUT THE MATRICES B AND W IF DESIRED
      NSTART=1
      IF(INDEX .EQ. 3) GO TO 10
    5 IF(INDEX .EQ. 1) K=1
      IF(INDEX .EQ. 2) K=2
      GO TO 30
   10 WRITE(6,1)
    1 FORMAT(1H0,10X,'*** MATRIX B ***'//)
   15 NSTOP=NSTART+9
      WRITE(6,11) (J,J=NSTART,NSTOP)
   11 FORMAT(1H0,' J=',8X,I3,9(9X,I3))
      DO 20 I=1,NHM1
      WRITE(6,12) I,(B(I,J),J=NSTART,NSTOP)
   12 FORMAT(1X,'I=',I3,10(2X,E10.4))
   20 CONTINUE
      NSTART=NSTART+10
      IF(NSTART .GT. NHM1) GO TO 100
   25 GO TO 15
   30 WRITE(6,2) K
    2 FORMAT(1H0,10X,'*** MATRIX W *** K=',I3,' ***'//)
   35 NSTOP=NSTART+9
      WRITE(6,11) (J,J=NSTART,NSTOP)
      DO 40 I=1,NHM1
      WRITE(6,12) I,(W(K,I,J),J=NSTART,NSTOP)
   40 CONTINUE
      NSTART=NSTART+10
      IF(NSTART .GT. NHM1) GO TO 100
   45 GO TO 35
  100 RETURN
      END
```

```
      SUBROUTINE OUTPUT(NUMVEC)
      COMMON / FIELDS / W,VAL,Y,U
      COMMON / SPACES / B,BI,TEMP,VECT
      COMMON / ARRAYS / IORD(101),INUM(101)
      COMMON / PARAMS / M,N,NM1,NM2,NM3,NM4,NM5,NH,NHM1,NHM2,NHM3,NHM4,
     1                  NHM5,KOUNT,MODE,NCAL
      COMMON / FACTOR / XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
      DOUBLE PRECISION  W(2,100,100),VAL(2,100),Y(201),U(201)
      DOUBLE PRECISION  B(100,100),BI(100,100),TEMP(2,100),VECT(2,100)
      DOUBLE PRECISION  XN,XNM1,XNH,XNHM1,DX,DY,DXSQR,DYSQR,RATIO,
     1                  RATIOP,DT,DTT,FRACEL,XLAMDA,ALPHA,H,REYNLD,
     2                  ZETA,OMEGA,OMEGT,C1,C2,D1,D2,GAMA,BETA,DETRM,
     3                  FAC,PUNT,CRIT,P1,P2,P3,P4
C     THIS CONTROLS MAIN OUTPUT BY PRINTING ALL THE EIGENVALUES AND
CC    AS MANY EIGENVECTORS AS DESIRED (CONTROLLED BY NUMVEC)
CC
CC    PRINT THE EIGENVALUES
C
      WRITE(6,11)
   11 FORMAT(5X,'STORNUM  STABNUM',10X,'EIGENVALUE',23X,'STORNUM  STABNU
     1M',10X,'EIGENVALUE')
      DO 10 I=1,NCAL
      WRITE(6,12) I,INUM(I),VAL(1,I),VAL(2,I),IORD(I),I,TEMP(1,I),
     1            TEMP(2,I)
   12 FORMAT(7X,I3,6X,I3,3X,E13.7,' + ',E13.7,' *I',12X,I3,6X,I3,3X,
     1       E13.7,' + ',E13.7,' *I')
   10 CONTINUE
C
CC    PRINT EIGENVECTORS
C
      IF(NUMVEC .GT. NCAL) NUMVEC=NCAL
      IF(NUMVEC .LT. 1) GO TO 30
   15 NSTART=1
      NN=4
   19 NNN=MIN0(NUMVEC,NN)
      WRITE(6,13) (I,I=NSTART,NNN)
   13 FORMAT(11X,3('STABNUM = ',I3,17X),'STABNUM = ',I3)
      WRITE(6,14)
   14 FORMAT(4(9X,'REAL',8X,'IMAGINARY'))
      DO 20 I=1,NHM1
      WRITE(6,16) (W(1,I,IORD(J)),W(2,I,IORD(J)),J=NSTART,NNN),Y(I+1)
   20 CONTINUE
      WRITE(6,99)
      NN=NN+4
      NSTART=NSTART+4
```

```
      IF(NSTART .LT. NUMVEC) GO TO 19
   16 FORMAT(1X,4(4X,E12.6,2X,E12.6),2X,F6.3)
   35 FORMAT(2F10.7)
   40 FORMAT(4E14.6)
   99 FORMAT(1H0,10X,'* * * * * * * * * * * * * * * * * * * * * * * * * *
     1* * * * * * * * * * * * * * * * * * * * * * * * '//)
   30 RETURN
      END

      SUBROUTINE MINV(A,N,D,L,M)                                        MINV  330
      DIMENSION A(1),L(1),M(1)                                          MINV  340
      DOUBLE PRECISION A,D,BIGA,HOLD                                    MINV  420
C                                                                       MINV   10
C                                                                       MINV   30
C        PURPOSE                                                        MINV   60
C           INVERT A MATRIX                                             MINV   70
C                                                                       MINV   80
C        USAGE                                                          MINV   90
C           CALL MINV(A,N,D,L,M)                                        MINV  100
C                                                                       MINV  110
C        DESCRIPTION OF PARAMETERS                                      MINV  120
C           A - INPUT MATRIX, DESTROYED IN COMPUTATION AND REPLACED BY  MINV  130
C               RESULTANT INVERSE.                                      MINV  140
C           N - ORDER OF MATRIX A                                       MINV  150
C           D - RESULTANT DETERMINANT                                   MINV  160
C           L - WORK VECTOR OF LENGTH N                                 MINV  170
C           M - WORK VECTOR OF LENGTH N                                 MINV  180
C                                                                       MINV  190
C                                                                       MINV  250
C        METHOD                                                         MINV  260
C           THE STANDARD GAUSS-JORDAN METHOD IS USED. THE DETERMINANT   MINV  270
C           IS ALSO CALCULATED. A DETERMINANT OF ZERO INDICATES THAT    MINV  280
C           THE MATRIX IS SINGULAR.                                     MINV  290
C                                                                       MINV  300
C     ..................................................................MINV  310
C                                                                       MINV  530
C        SEARCH FOR LARGEST ELEMENT                                     MINV  540
C                                                                       MINV  550
      D=1.0                                                             MINV  560
      NK=-N                                                             MINV  570
      DO 80 K=1,N                                                       MINV  580
      NK=NK+N                                                           MINV  590
      L(K)=K                                                            MINV  600
      M(K)=K                                                            MINV  610
      KK=NK+K                                                           MINV  620
      BIGA=A(KK)                                                        MINV  630
      DO 20 J=K,N                                                       MINV  640
```

```
      IZ=N*(J-1)                                                        MINV 650
      DO 20 I=K,N                                                       MINV 660
      IJ=IZ+I                                                           MINV 670
   10 IF(DABS(BIGA)-DABS(A(IJ))) 15,20,20                               MINV 680
   15 BIGA=A(IJ)                                                        MINV 690
      L(K)=I                                                            MINV 700
      M(K)=J                                                            MINV 710
   20 CONTINUE                                                          MINV 720
C                                                                       MINV 730
CC        INTERCHANGE ROWS                                              MINV 740
C                                                                       MINV 750
      J=L(K)                                                            MINV 760
      IF(J-K) 35,35,25                                                  MINV 770
   25 KI=K-N                                                            MINV 780
      DO 30 I=1,N                                                       MINV 790
      KI=KI+N                                                           MINV 800
      HOLD=-A(KI)                                                       MINV 810
      JI=KI-K+J                                                         MINV 820
      A(KI)=A(JI)                                                       MINV 830
   30 A(JI) =HOLD                                                       MINV 840
C                                                                       MINV 850
CC        INTERCHANGE COLUMNS                                           MINV 860
C                                                                       MINV 870
   35 I=M(K)                                                            MINV 880
      IF(I-K) 45,45,38                                                  MINV 890
   38 JP=N*(I-1)                                                        MINV 900
      DO 40 J=1,N                                                       MINV 910
      JK=NK+J                                                           MINV 920
      JI=JP+J                                                           MINV 930
      HOLD=-A(JK)                                                       MINV 940
      A(JK)=A(JI)                                                       MINV 950
   40 A(JI) =HOLD                                                       MINV 960
C                                                                       MINV 970
CC        DIVIDE COLUMN BY MINUS PIVOT (VALUE OF PIVOT ELEMENT IS       MINV 980
CC        CONTAINED IN BIGA)                                            MINV 990
C                                                                       MINV1000
   45 IF(BIGA) 48,46,48                                                 MINV1010
   46 D=0.0                                                             MINV1020
      RETURN                                                            MINV1030
   48 DO 55 I=1,N                                                       MINV1040
      IF(I-K) 50,55,50                                                  MINV1050
   50 IK=NK+I                                                           MINV1060
      A(IK)=A(IK)/(-BIGA)                                               MINV1070
   55 CONTINUE                                                          MINV1080
C                                                                       MINV1090
CC        REDUCE MATRIX                                                 MINV1100
C                                                                       MINV1110
      DO 65 I=1,N                                                       MINV1120
```

```
      IK=NK+I                                                          MINV1130
      HOLD=A(IK)                                                       MINV1140
      IJ=I-N                                                           MINV1150
      DO 65 J=1,N                                                      MINV1160
      IJ=IJ+N                                                          MINV1170
      IF(I-K) 60,65,60                                                 MINV1180
   60 IF(J-K) 62,65,62                                                 MINV1190
   62 KJ=IJ-I+K                                                        MINV1200
      A(IJ)=HOLD*A(KJ)+A(IJ)                                           MINV1210
   65 CONTINUE                                                         MINV1220
C                                                                      MINV1230
CC         DIVIDE ROW BY PIVOT                                         MINV1240
C                                                                      MINV1250
      KJ=K-N                                                           MINV1260
      DO 75 J=1,N                                                      MINV1270
      KJ=KJ+N                                                          MINV1280
      IF(J-K) 70,75,70                                                 MINV1290
   70 A(KJ)=A(KJ)/BIGA                                                 MINV1300
   75 CONTINUE                                                         MINV1310
C                                                                      MINV1320
CC         PRODUCT OF PIVOTS                                           MINV1330
C                                                                      MINV1340
      D=D*BIGA                                                         MINV1350
C                                                                      MINV1360
CC         REPLACE PIVOT BY RECIPROCAL                                 MINV1370
C                                                                      MINV1380
      A(KK)=1.0/BIGA                                                   MINV1390
   80 CONTINUE                                                         MINV1400
C                                                                      MINV1410
CC         FINAL ROW AND COLUMN INTERCHANGE                            MINV1420
C                                                                      MINV1430
      K=N                                                              MINV1440
  100 K=(K-1)                                                          MINV1450
      IF(K) 150,150,105                                                MINV1460
  105 I=L(K)                                                           MINV1470
      IF(I-K) 120,120,108                                              MINV1480
  108 JQ=N*(K-1)                                                       MINV1490
      JR=N*(I-1)                                                       MINV1500
      DO 110 J=1,N                                                     MINV1510
      JK=JQ+J                                                          MINV1520
      HOLD=A(JK)                                                       MINV1530
      JI=JR+J                                                          MINV1540
      A(JK)=-A(JI)                                                     MINV1550
  110 A(JI) =HOLD                                                      MINV1560
  120 J=M(K)                                                           MINV1570
      IF(J-K) 100,100,125                                              MINV1580
  125 KI=K-N                                                           MINV1590
      DO 130 I=1,N                                                     MINV1600
```

```
      KI=KI+N                                                          MINV1610
      HOLD=A(KI)                                                       MINV1620
      JI=KI-K+J                                                        MINV1630
      A(KI)=-A(JI)                                                     MINV1640
  130 A(JI) =HOLD                                                      MINV1650
      GO TO 100                                                        MINV1660
  150 RETURN                                                           MINV1670
      END                                                              MINV1680

      SUBROUTINE DALMAT(A,LAMBDA,M,IA,NCAL)                            DALMA044
      IMPLICIT REAL*8 (A-H), REAL*8 (O-Z)                              DALMA052
      COMMON / SPACES / HL,MULT,VECT
      COMMON / EXTRA / NUMVEC
      COMPLEX*16 CSQRQ, CONJQ                                          DALMA053
      REAL*8 REAQ,AIMAQ,CABQ,SQRQ,FLOAQ,ABQ                            DALMA054
      COMPLEX*16 HL(100,100),H(100,100),MULT(100),VECT(100)
      COMPLEX*16 A(IA,1),LAMBDA(1),SHIFT(3),TEMP,SIN,COS,TEMP1,TEMP2
      LOGICAL INTH(100),TWICE
      INTEGER INT(100),R,RP1,RP2
C                                                                      DALMA045
CC                                                                     DALMA047
C PROG.AUTHORS JOHN RINZEL,R.E.FUNDERLIC,UNION CARBIDE CORP.           DALMA048
C NUCLEAR DIVISION,CENTRAL DATA PROCESSING FACILITY,                   DALMA049
C OAK RIDGE TENNESSEE                                                  DALMA050
C                                                                      DALMA051
C   PURPOSE                                                            DALMA006
C        DALMAT CALCULATES IN DOUBLE-PRECISION THE EIGENVALUES AND EIGENDALMA007
C        VECTORS OF AN ARBITRARY COMPLEX MATRIX BY USE OF THE QR ALGOR- DALMA008
C        ITHM AND THE WIELANDT INVERSE POWER METHOD FOR VECTORS.       DALMA009
C                                                                      DALMA010
C   USAGE                                                              DALMA011
C        CALL DALMAT (A,VAL,M,IA,NCAL)                                 DALMA012
C                                                                      DALMA013
C   DESCRIPTION OF PARAMETERS                                          DALMA014
C        A   :  INPUT MATRIX, DOUBLY-DIMENSIONED, COMPLEX*16 IN TYPE.  DALMA015
C               ON RETURN FROM DALMAT IT WILL CONTAIN THE COMPLEX EIGEN-DALMA016
C               VECTORS OF THE INPUT MATRIX.                           DALMA017
C        VAL :  SINGLY-DIMENSIONED COMPLEX*16 ARRAY IN WHICH DALMAT    DALMA018
C               RETURNS THE EIGENVALUES OF THE INPUT MATRIX. VAL(I)    DALMA019
C               CORRESPONDS WITH THE EIGENVECTOR A(J,I),J=1,M.         DALMA020
C        M   :  ORDER OF INPUT MATRIX, INTEGER*4.                      DALMA021
C        IA  :   IS THE ROW(FIRST) DIMENSION OF A IN THE CALLING PROGRAMDALMA022
C        NCAL:   INTEGER INDICATOR; UPON RETURN FROM DALMAT IT CONTAINS DALMA023
C               THE NUMBER OF EIGENVALUES WITH CORRESPONDING EIGEN-    DALMA024
C               VECTORS WHICH HAVE BEEN CALCULATED.                    DALMA025
C                                                                      DALMA026
C   REMARKS                                                            DALMA027
```

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C         EIGENVALUES ARE NOT NECESSARILY CALCULATED IN ANY ABSOLUTE      DALMA029
C         ALGEBRAIC ORDER.                                               DALMA030
C         IN CASE OF NON-CONVERGENCE DALMAT RETURNS NCAL.LT.M. IN THIS    DALMA031
C         CASE USER CAN SCALE THE INPUT MATRIX OR SHIFT VALUES BY ADDING  DALMA032
C         A CONSTANT TO THE DIAGONAL OF A.                               DALMA033
C                                                                        DALMA034
C.....................................................................DALMA002
C                                                                        DALMA043
      N=M                                                              DALMA060
      NCAL=N                                                           DALMA061
      IF(N.NE.1)GO TO 1                                                DALMA062
      LAMBDA(1)=A(1,1)                                                 DALMA063
      A(1,1)=1.                                                        DALMA064
      GO TO 57                                                         DALMA065
    1 ICOUNT=0                                                         DALMA066
      SHIFT(1)=0.                                                      DALMA067
      IF(N.NE.2)GO TO 4                                                DALMA068
    2 TEMP=(A(1,1)+A(2,2)+CSQRQ((A(1,1)+A(2,2))**2-                    DALMA069
     14.*(A(2,2)*A(1,1)-A(2,1)*A(1,2))))/2.                            DALMA070
      IF(REAQ(TEMP).NE.0..OR.AIMAQ(TEMP).NE.0.)GO TO 3                 DALMA071
      LAMBDA(M)=SHIFT(1)                                               DALMA072
      LAMBDA(M-1)=A(1,1)+A(2,2)+SHIFT(1)                               DALMA073
      GO TO 37                                                         DALMA074
    3 LAMBDA(M)=TEMP+SHIFT (1)                                         DALMA075
      LAMBDA(M-1)=(A(2,2)*A(1,1)-A(2,1)*A(1,2))/(LAMBDA(M)-SHIFT(1))   DALMA076
     1   +SHIFT(1)                                                     DALMA077
      GO TO 37                                                         DALMA078
C                                                                      DALMA079
CC    REDUCE MATRIX A TO HESSENBERG FORM                               DALMA080
C                                                                      DALMA081
    4 NM2=N-2                                                          DALMA082
      DO 15 R=1,NM2                                                    DALMA083
      RP1=R+1                                                          DALMA084
      RP2=R+2                                                          DALMA085
      ABIG=0.                                                          DALMA086
      INT(R)=RP1                                                       DALMA087
      DO 5 I=RP1,N                                                     DALMA088
      ABSSQ=REAQ(A(I,R))**2+AIMAQ(A(I,R))**2                           DALMA089
      IF(ABSSQ.LE.ABIG)GO TO 5                                         DALMA090
      INT(R)=I                                                         DALMA091
      ABIG=ABSSQ                                                       DALMA092
    5 CONTINUE                                                         DALMA093
      INTER=INT(R)                                                     DALMA094
      IF(INTER.EQ.RP1)GO TO 8                                          DALMA095
      IF(ABIG.EQ.0.)GO TO 15                                           DALMA096
      DO 6 I=R,N                                                       DALMA097
      TEMP=A(RP1,I)                                                    DALMA098
      A(RP1,I)=A(INTER,I)                                              DALMA099
```

```
     6 A(INTER,I)=TEMP                                                      DALMA100
       DO 7 I=1,N                                                           DALMA101
       TEMP=A(I,RP1)                                                        DALMA102
       A(I,RP1)=A(I,INTER)                                                  DALMA103
     7 A(I,INTER)=TEMP                                                      DALMA104
     8 DO 9 I=RP2,N                                                         DALMA105
       MULT(I)=A(I,R)/A(RP1,R)                                              DALMA106
     9 A(I,R)=MULT(I)                                                       DALMA107
       DO 11 I=1,RP1                                                        DALMA108
       TEMP=0.                                                              DALMA109
       DO 10 J=RP2,N                                                        DALMA110
    10 TEMP=TEMP+A(I,J)*MULT(J)                                             DALMA111
    11 A(I,RP1)=A(I,RP1)+TEMP                                               DALMA112
       DO 13 I=RP2,N                                                        DALMA113
       TEMP=0.                                                              DALMA114
       DO 12 J=RP2,N                                                        DALMA115
    12 TEMP=TEMP+A(I,J)*MULT(J)                                             DALMA116
    13 A(I,RP1)=A(I,RP1)+TEMP-MULT(I)*A(RP1,RP1)                            DALMA117
       DO 14 I=RP2,N                                                        DALMA118
       DO 14 J=RP2,N                                                        DALMA119
    14 A(I,J)=A(I,J)-MULT(I)*A(RP1,J)                                       DALMA120
    15 CONTINUE                                                             DALMA121
C                                                                           DALMA122
C      CALCULATE EPSILON                                                    DALMA123
C                                                                           DALMA124
       EPS=0.                                                               DALMA125
       DO 16 I=1,N                                                          DALMA126
    16 EPS=EPS+CABQ(A(1,I))                                                 DALMA127
       DO 18 I=2,N                                                          DALMA128
       SUM=0.                                                               DALMA129
       IM1=I-1                                                              DALMA130
       DO 17 J=IM1,N                                                        DALMA131
    17 SUM=SUM+CABQ(A(I,J))                                                 DALMA132
    18 IF(SUM.GT.EPS)EPS=SUM                                                DALMA133
       EPS=SQRQ(FLOAQ(N))*EPS*1.D-12                                        DALMA134
       IF(EPS.EQ.0.)EPS=1.D-12                                              DALMA135
       DO 19 I=1,N                                                          DALMA136
       DO 19 J=1,N                                                          DALMA137
    19 H(I,J)=A(I,J)                                                        DALMA138
    20 IF(N.NE.1)GO TO 21                                                   DALMA139
       LAMBDA(M)=A(1,1)+SHIFT(1)                                            DALMA140
       GO TO 37                                                             DALMA141
    21 IF(N.EQ.2)GO TO 2                                                    DALMA142
    22 MN1=M-N+1                                                            DALMA143
       IF(REAQ(A(N,N)).NE.0..OR.AIMAQ(A(N,N)).NE.0.)                        DALMA144
      1  IF(ABQ(REAQ(A(N,N-1)/A(N,N)))+ABQ(AIMAQ(A(N,N-1)/A(N,N)))-1.D-9)  DALMA145
      2  24,24,23                                                          DALMA146
    23 IF(ABQ(REAQ(A(N,N-1)))+ABQ(AIMAQ(A(N,N-1))).GE.EPS)GO TO 25          DALMA147
```

```
   24 LAMBDA(MN1)=A(N,N)+SHIFT(1)                                        DALMA148
      ICOUNT=0                                                           DALMA149
      N=N-1                                                              DALMA150
      GO TO 21                                                           DALMA151
C                                                                        DALMA152
C     DETERMINE SHIFT                                                    DALMA153
C                                                                        DALMA154
   25 SHIFT(2)=(A(N-1,N-1)+A(N,N)+CSQRQ((A(N-1,N-1)+A(N,N))**2           DALMA155
     1 -4.*(A(N,N)*A(N-1,N-1)-A(N,N-1)*A(N-1,N))))/2.                    DALMA156
      IF(REAQ(SHIFT(2)).NE.0..OR.AIMAQ(SHIFT(2)).NE.0.)GO TO 26          DALMA157
      SHIFT(3)=A(N-1,N-1)+A(N,N)                                         DALMA158
      GO TO 27                                                           DALMA159
   26 SHIFT(3)=(A(N,N)*A(N-1,N-1)-A(N,N-1)*A(N-1,N))/SHIFT(2)            DALMA160
   27 IF(CABQ(SHIFT(2)-A(N,N)).LT.CABQ(SHIFT(3)-A(N,N)))GO TO 28         DALMA161
      INDEX=3                                                            DALMA162
      GO TO 29                                                           DALMA163
   28 INDEX=2                                                            DALMA164
   29 IF(CABQ(A(N-1,N-2)).GE.EPS)GO TO 30                                DALMA165
      LAMBDA(MN1)=SHIFT(2)+SHIFT (1)                                     DALMA166
      LAMBDA(MN1+1)=SHIFT(3)+SHIFT(1)                                    DALMA167
      ICOUNT=0                                                           DALMA168
      N=N-2                                                              DALMA169
      GO TO 20                                                           DALMA170
   30 SHIFT(1) = SHIFT (1) + SHIFT(INDEX)                                DALMA171
      DO 31 I=1,N                                                        DALMA172
   31 A(I,I)=A(I,I)-SHIFT(INDEX)                                         DALMA173
C                                                                        DALMA174
C     PERFORM GIVENS ROTATIONS, QR ITERATES                              DALMA175
C                                                                        DALMA176
      IF(ICOUNT.LE.10)GO TO 32                                           DALMA177
      NCAL=M-N                                                           DALMA178
      GO TO 37                                                           DALMA179
   32 NM1=N-1                                                            DALMA180
      TEMP1=A(1,1)                                                       DALMA181
      TEMP2=A(2,1)                                                       DALMA182
      DO 36 R=1,NM1                                                      DALMA183
      RP1=R+1                                                            DALMA184
      RHO=SQRQ(REAQ(TEMP1)**2+AIMAQ(TEMP1)**2+                           DALMA185
     1 REAQ(TEMP2)**2+AIMAQ(TEMP2)**2)                                   DALMA186
      IF(RHO.EQ.0.)GO TO 36                                              DALMA187
      COS=TEMP1/RHO                                                      DALMA188
      SIN=TEMP2/RHO                                                      DALMA189
      INDEX=MAXO(R-1,1)                                                  DALMA190
      DO 33 I=INDEX,N                                                    DALMA191
      TEMP=CONJQ(COS)*A(R,I)+CONJQ(SIN)*A(RP1,I)                         DALMA192
      A(RP1,I)=-SIN*A(R,I)+COS*A(RP1,I)                                  DALMA193
   33 A(R,I)=TEMP                                                        DALMA194
      TEMP1=A(RP1,RP1)                                                   DALMA195
```

```
      TEMP2=A(R+2,R+1)                                                  DALMA196
      DO 34 I=1,R                                                       DALMA197
      TEMP=COS*A(I,R)+SIN*A(I,RP1)                                      DALMA198
      A(I,RP1)=-CONJQ(SIN)*A(I,R)+CONJQ(COS)*A(I,RP1)                   DALMA199
   34 A(I,R)=TEMP                                                       DALMA200
      INDEX=MINO(R+2,N)                                                 DALMA201
      DO 35 I=RP1,INDEX                                                 DALMA202
      A(I,R)=SIN*A(I,RP1)                                               DALMA203
   35 A(I,RP1)=CONJQ(COS)*A(I,RP1)                                      DALMA204
   36 CONTINUE                                                          DALMA205
      ICOUNT=ICOUNT+1                                                   DALMA206
      GO TO 22                                                          DALMA207
C                                                                       DALMA208
CC    CALCULATE VECTORS                                                 DALMA209
C                                                                       DALMA210
   37 IF(NCAL.EQ.0)GO TO 57                                             DALMA211
      N=M                                                               DALMA212
      NM1=N-1                                                           DALMA213
      IF(N.NE.2)GO TO 38                                                DALMA214
      EPS=DMAX1(CABQ(LAMBDA(1)),CABQ(LAMBDA(2)))*1.D-8                  DALMA215
      IF(EPS.EQ.0.)EPS=1.D-12                                           DALMA216
      H(1,1)=A(1,1)                                                     DALMA217
      H(1,2)=A(1,2)                                                     DALMA218
      H(2,1)=A(2,1)                                                     DALMA219
      H(2,2)=A(2,2)                                                     DALMA220
   38 DO 56 L=1,NCAL                                                    DALMA221
      DO 40 I=1,N                                                       DALMA222
      DO 39 J=1,N                                                       DALMA223
   39 HL(I,J)=H(I,J)                                                    DALMA224
   40 HL(I,I)=HL(I,I)-LAMBDA(L)                                         DALMA225
      DO 44 I=1,NM1                                                     DALMA226
      MULT(I)=0.                                                        DALMA227
      INTH(I)=.FALSE.                                                   DALMA228
      IP1=I+1                                                           DALMA229
      IF(CABQ(HL(I+1,I)).LE.CABQ(HL(I,I)))GO TO 42                      DALMA230
      INTH(I)=.TRUE.                                                    DALMA231
      DO 41 J=I,N                                                       DALMA232
      TEMP=HL(I+1,J)                                                    DALMA233
      HL(I+1,J)=HL(I,J)                                                 DALMA234
   41 HL(I,J)=TEMP                                                      DALMA235
   42 IF(REAQ(HL(I,I)).EQ.0..AND.AIMAQ(HL(I,I)).EQ.0.)GO TO 44          DALMA236
      MULT(I)=-HL(I+1,I)/HL(I,I)                                        DALMA237
      DO 43 J=IP1,N                                                     DALMA238
   43 HL(I+1,J)=HL(I+1,J)+MULT(I)*HL(I,J)                               DALMA239
   44 CONTINUE                                                          DALMA240
      DO 45 I=1,N                                                       DALMA241
   45 VECT(I)=1.                                                        DALMA242
      TWICE=.FALSE.                                                     DALMA243
```

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46 IF(REAQ(HL(N,N)).EQ.0..AND.AIMAQ(HL(N,N)).EQ.0.)HL(N,N)=EPS          DALMA244
   VECT(N)=VECT(N)/HL(N,N)                                             DALMA245
   DO 48 I=1,NM1                                                       DALMA246
   K=N-I                                                               DALMA247
   DO 47 J=K,NM1                                                       DALMA248
47 VECT(K)=VECT(K)-HL(K,J+1)*VECT(J+1)                                 DALMA249
   IF(REAQ(HL(K,K)).EQ.0..AND.AIMAQ(HL(K,K)).EQ.0.)HL(K,K)=EPS         DALMA250
48 VECT(K)=VECT(K)/HL(K,K)                                             DALMA251
   BIG=0.                                                              DALMA252
   DO 49 I=1,N                                                         DALMA253
   SUM=ABQ(REAQ(VECT(I)))+ABQ(AIMAQ(VECT(I)))                          DALMA254
49 IF(SUM.GT.BIG)BIG=SUM                                               DALMA255
   DO 50 I=1,N                                                         DALMA256
50 VECT(I)=VECT(I)/BIG                                                 DALMA257
   IF(TWICE)GO TO 52                                                   DALMA258
   DO 51 I=1,NM1                                                       DALMA259
   IF(.NOT.INTH(I))GO TO 51                                            DALMA260
   TEMP=VECT(I)                                                        DALMA261
   VECT(I)=VECT(I+1)                                                   DALMA262
   VECT(I+1)=TEMP                                                      DALMA263
51 VECT(I+1)=VECT(I+1)+MULT(I)*VECT(I)                                 DALMA264
   TWICE=.TRUE.                                                        DALMA265
   GO TO 46                                                            DALMA266
52 IF(N.EQ.2)GO TO 55                                                  DALMA267
   NM2=N-2                                                             DALMA268
   DO 54 I=1,NM2                                                       DALMA269
   N1I=N-1-I                                                           DALMA270
   NI1=N-I+1                                                           DALMA271
   DO 53 J=NI1,N                                                       DALMA272
53 VECT(J)=H(J,N1I)*VECT(N1I+1)+VECT(J)                                DALMA273
   INDEX=INT(N1I)                                                      DALMA274
   TEMP=VECT(N1I+1)                                                    DALMA275
   VECT(N1I+1)=VECT(INDEX)                                             DALMA276
54 VECT(INDEX)=TEMP                                                    DALMA277
55 DO 56 I=1,N                                                         DALMA278
56 A(I,L)=VECT(I)                                                      DALMA279
57 RETURN                                                              DALMA280
   END                                                                 DALMA281
   REAL FUNCTION CABQ*8 (Z)                                            DALMA282
   COMPLEX*16 Z                                                        DALMA283
   CABQ = CDABS(Z)                                                     DALMA284
   RETURN                                                              DALMA285
   END                                                                 DALMA286
   REAL FUNCTION SQRQ*8 (X)                                            DALMA287
   REAL * 8 X                                                          DALMA288
   SQRQ = DSQRT(X)                                                     DALMA289
   RETURN                                                              DALMA290
   END                                                                 DALMA291
```

```
      REAL FUNCTION FLOAQ*8(I)                                          DALMA292
      FLOAQ = DFLOAT (I)                                                DALMA293
      RETURN                                                            DALMA294
      END                                                               DALMA295
      REAL FUNCTION ABQ*8(X)                                            DALMA296
      REAL*8 X                                                          DALMA297
      ABQ = DABS(X)                                                     DALMA298
      RETURN                                                            DALMA299
      END                                                               DALMA300
      COMPLEX FUNCTION CSQRQ*16 (Z)                                     DALMA301
      COMPLEX*16 Z                                                      DALMA302
      CSQRQ = CDSQRT(Z)                                                 DALMA303
      RETURN                                                            DALMA304
      END                                                               DALMA305
      COMPLEX FUNCTION CONJQ*16 (Z)                                     DALMA306
      COMPLEX*16 Z                                                      DALMA307
      CONJQ = DCONJG (Z)                                                DALMA308
      RETURN                                                            DALMA309
      END                                                               DALMA310
      REAL FUNCTION REAQ*8 (Z)                                          DALMA311
      COMPLEX *16 Z                                                     DALMA312
      REAQ = Z                                                          DALMA313
      RETURN                                                            DALMA314
      END                                                               DALMA315
      REAL FUNCTION AIMAQ*8 (Z)                                         DALMA316
      COMPLEX *16 Z                                                     DALMA317
      AIMAQ = Z * (0.D0,-1.D0)                                          DALMA318
      RETURN                                                            DALMA319
      END                                                               DALMA320
```

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DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)*
Naval Postgraduate School
Monterey, California 93940

2a. REPORT SECURITY CLASSIFICATION
Unclassified

2b. GROUP

3. REPORT TITLE

Tables of Eigenvalues and Eigenfunctions of the Orr-Sommerfeld Equation for Plane Poiseuille Flows

4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*
Technical Report; September 1971

5. AUTHOR(S) *(First name, middle initial, last name)*
T. H. Gawain and W. H. Clark

6. REPORT DATE
10 September 1971

7a. TOTAL NO. OF PAGES
184

7b. NO. OF REFS
7

8a. CONTRACT OR GRANT NO.

b. PROJECT NO.

c.

d.

9a. ORIGINATOR'S REPORT NUMBER(S)
NPS-57Gn71092A

9b. OTHER REPORT NO(S) *(Any other numbers that may be assigned this report)*

10. DISTRIBUTION STATEMENT
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11. SUPPLEMENTARY NOTES

12. SPONSORING MILITARY ACTIVITY
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13. ABSTRACT

In this report we present a numerical technique for computing the eigenvalues and eigenfunctions of the Orr-Sommerfeld equation for infinitesimal disturbances in plane Poiseuille flows. For the case $\alpha = 1.0$, $R_e = 6667$ the eigenvalues, β_{nm}, (n = 1,2,3,4 m = 1,2,...199) and eigenfunctions, $\Phi_{nm}(y)$, (n = 1,2,3,4 m = 1,2,...8) are presented in tabular and graphical form. In addition the function, $\chi_{nm}(y)$, (equation 27) which is orthogonal to $\Phi_{nm}(y)$,over the interval $-1 \leq y \leq \pm 1$ is tabulated.

In a previous report (Gawain and Clark)1971) it was shown that these eigenfunctions can be extremely useful in describing certain aspects of the non-linear mechanics of wave disturbances in plane Poiseuille flows. It is hoped that the present report will serve both as a complement to the previously mentioned report (Reference 2) and as a useful reference for similar future investigations.

14 KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Hydrodynamic Stability						
Finite-Differences						
Plane Poiseuille Flow						

1140818

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